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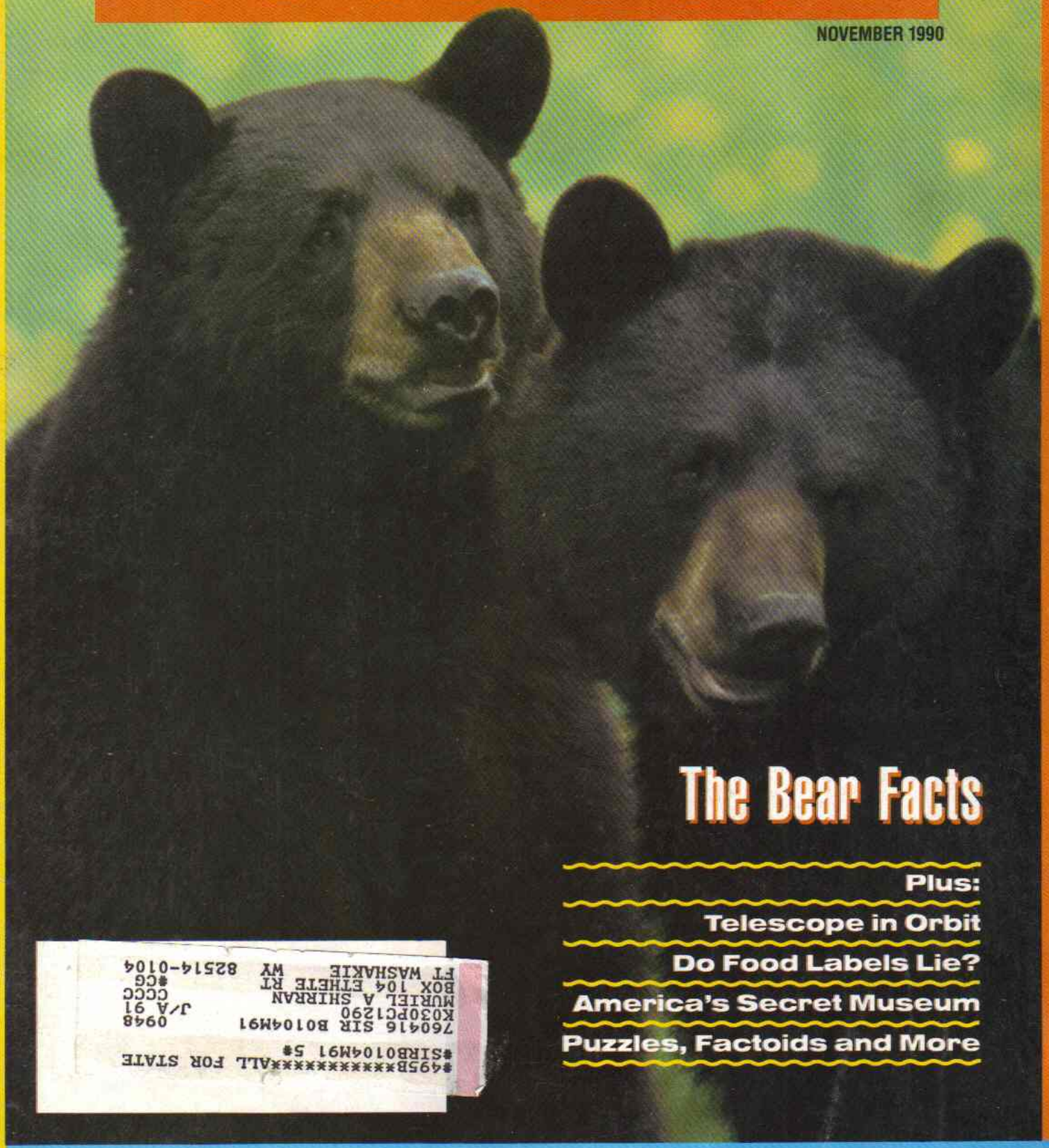
CHILDREN'S TELEVISION WORKSHOP EXPLORES THE WORLD

CONTACT®

NOVEMBER 1990



The Bear Facts

Plus:

Telescope in Orbit

Do Food Labels Lie?

America's Secret Museum

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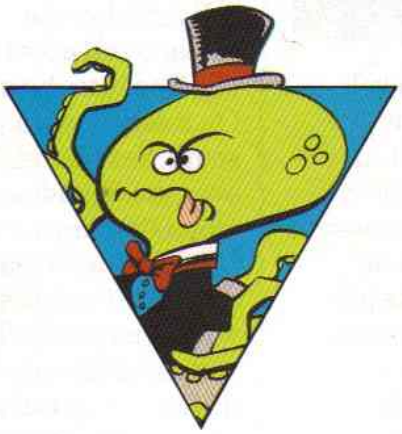

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DEPARTMENTS

ON OUR COVER

Two black bears snuggle up.
Photo: © Gary L. Alt

TNT News Blasts

Something Fishy

What does a dolphin have to do with a tuna fish sandwich? Plenty. That's because three companies that sell canned tuna in the U.S. are now buying only "dolphin-free" tuna. Because of pressure from environmental groups, the companies will no longer buy any tuna caught in nets that also trap and kill dolphins.

Fishermen use large, circular nets to catch yellowfin tuna. Since dolphins and yellowfin tuna swim together, dolphins are often caught in the same nets. About 80,000 dolphins die each year because they get tangled in the fish nets and drown. (The nets prevent the dolphins from coming to the surface to breathe.)

How do you know which brands of tuna are dolphin-free? Check the labels. There are now "dolphin-safe" labels on many tuna fish cans.

PHOTO © NANCY SIMMERMAN/ALLSTOCK

In a Haze

First there was smog. Now there's...vog. Vog, short for "volcanic fog," is giving lots of Hawaiians a dose of bad air. At least it has ever since the Kilauea volcano started erupting again in Hawaii seven years ago.

Every day the volcano releases tons of gases into the air. On many days, a soupy haze hangs over the island–even when it's sunny.

But things aren't so sunny for those who live nearby. The vog can make it difficult to breathe. On "voggy" days, officials advise people who have breathing problems to protect themselves by wearing surgical masks and staying indoors with air conditioning.

The volcanic gases also produce acid rain. When the gases rise into the air, they mix with water vapor. Eventually this mixture falls back to the ground in the form of acid rain. Acid rain damages plants, lakes, buildings and crops.

There's no clear answer to the vog problem. "Kilauea doesn't show any signs of letting up anytime soon," says Barry Stokes of the U.S. Geological Survey.

PHOTO © G. BRAD LEWIS/MAJALLA IMAGES

PHOTO COURTESY NASA

Up Against the Walls!

Are you feeling a little fenced in lately? Well, it's possible that you are! What's the story? Scientists think they may have found a "picket fence" around the universe.

Scientists have already discovered a "great wall" of galaxies. (A typical galaxy is made up of billions of stars.) The size of it is mind-boggling.

Take a look at these numbers: The "wall" is at least 200 million light-years wide, 500 million long and 15 million thick. And that's pretty huge since one light-year is about six trillion miles. The wall was thought to be the largest structure ever found in the universe.

But now some researchers think that this "great wall" is just the first of a series of "great walls." These gigantic clusters of galaxies are believed to be posted about 400 million light-years apart. "There seems to be a very regular pattern," says David Koo, a scientist at the University of California-Santa Cruz. "It's like a cosmic picket fence." *Story suggested by Sara Trent, Midlothian, VA.*

Sailing's A Breeze

It's a plane...It's a boat...It's a car! No, it's a land yacht! This wheeled sailcraft came in second place during the World Cup Regatta at a dried-up lake bed in Nevada.

Most land yachts use cloth sails. But this aluminum sail looks and acts more like a vertical airplane wing. And why shouldn't it? The yacht uses NASA aircraft technology to help it sail along at 90 miles per hour.

PHOTO COURTESY PHILIP M. ROTHROCK

Making Time

Many people in Bama, China, have lots of time on their hands. And for good reason. Bama has more 100-year-olds than any place else on Earth.

Chinese officials have found 62 people there who are more than 100 years old. Bama has plenty of 90-year-olds, too. And the 80-year-olds still work in the fields planting rice and corn.

Scientists have been visiting this tiny corner of southwestern China to figure out why these people seem to live so long. What's the secret of their success? Snakes, wild grass and red spotted lizards! Many of Bama's senior citizens say eating these tasty treats have kept them full of life.

Whether or not this helps Bamans live a long time hasn't been proven yet. But there's no doubt that time *is* on their side!

So What's New?

You tell us and you'll get a nifty CONTACT T-shirt—if we print your story. Send us any science story from the news that you think our readers would like to know about. (Be sure to tell us your T-shirt size and where you heard the story.)
Send to:
TNT
3-2-1 CONTACT Magazine
1 Lincoln Plaza
New York, NY 10023

By Renée Skelton

HOW DO THEY GET THE SWIRLS INSIDE CAT'S EYE MARBLES?

ILLUSTRATIONS BY VALÉRIE MARSELLA

The colored swirls in cat's eye marbles are glass — the same glass, in fact, as the rest of the marble. The swirls are just a different color. The trick is in how the two colors of glass get together.

Take a clear cat's eye with blue swirls, for example. First, the glass is melted. The part for the swirls is dyed blue. The blue glass then flows into a thin tube in the marble-making machine — like toothpaste squeezed from a tube. What comes out is a squiggle of clear glass with a blue center. A cutter chops off 5/8-inch chunks of the soft, hot glass.

Each chunk then drops onto a machine that spins it. The soft chunks become round as marbles as they spin — clear glass on the outside with blue swirls on the inside. They cool and harden into shiny cat's eye marbles.

Question sent in by Shanti Callender, Durham, NC.

WHY DO YOUR TEETH CHATTER WHEN YOU'RE COLD?

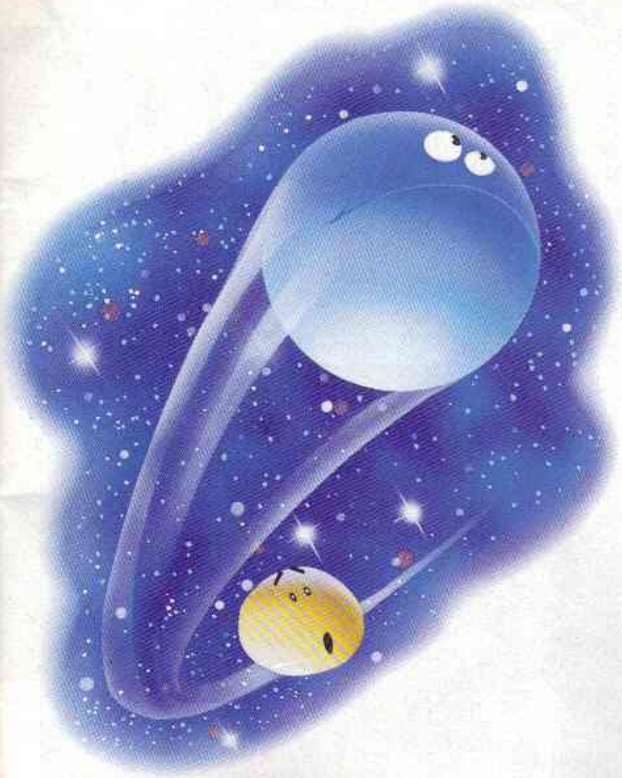
Brrrrrr! When you're cold your whole body may shake. Parts like your teeth just go along for the ride. The shaking is called shivering. And it's one way your cold body warms up.

Your normal body temperature is usually between 98 and 99 degrees Fahrenheit. When your temperature falls below this point, cold-sensitive nerves in the skin sense it. They send out messages to the part of your brain called the hypothalamus (say: hi-po-THAL-uh-mus): "You're chilling out. Send heat!"

The hypothalamus then sends signals to your skeletal muscles to quickly contract and relax, or shiver. This muscle movement produces heat. So the shivering helps bring up your body temperature.

When your body temperature is high enough, the hypothalamus sends messages that stop the shivering. Then your teeth stop ch-ch-chattering, too.

Question sent in by Katie Hauck, Fallbrook, CA.



WHY DO NEPTUNE AND PLUTO CHANGE PLACES IN SPACE?

Pluto takes 248 years to orbit the sun. For 228 of those years, it's our solar system's ninth and last planet. But for the other 20 years, Pluto is the eighth planet and Neptune is the ninth.

Why the switch? It's because Pluto has an oblong-shaped orbit. At one side of its orbit, Pluto is less than 3 billion miles from the sun. But at the other side, Pluto swings out 4½ billion miles from the sun. When Pluto is closest to the sun, it actually slips *inside* the orbit of Neptune. And Neptune becomes the last planet in the solar system.

Neptune and Pluto last switched places on January 23, 1979. So Pluto is now the eighth planet and Neptune the ninth. The planets will cross paths again on March 15, 1999. Then for the next 228 years, Pluto will be the ninth planet. How's that for trading places?

Question sent in by Tiffany Smith, Grantsville, WV.

WHY DO DOGS PUT THEIR TAILS BETWEEN THEIR LEGS WHEN YOU YELL AT THEM?

Your dog can't talk to you. But he can communicate in other ways to let you know it's a dog's life.

When you yell at your dog, he knows you're angry. Tucking in his tail is his way of showing who's boss. It's as if he's saying, "I know you're my master and I've made you angry. I'm sorry."

Your dog might react in other ways, too. He might slink down or flatten his ears against his head. He might look away from you. Or he might hold up one paw, then roll over on his back.

These actions are called *instincts*. They date back thousands of years when wild dogs lived in packs. Each pack had a leader. Lower-ranking dogs always obeyed the "top dog."

In your house, you're the boss. When you scold your dog, his actions show who's the leader of the pack.

Question sent in by K.C. Innis, Boulder, CO.

Do you have a question that no one seems able to answer? Why not ask us? Write to: Any Questions? 3-2-1 Contact, P.O. Box 40, Vernon, NJ 07462

INTO THE WOODS

A SCIENTIST TRACKS DOWN BEAR FACTS

by John Grossmann

Gary Alt is tracking bears. As he steers his jeep through the thick Pennsylvania woods, his assistant points an antenna out the window. Inside the jeep a radio picks up signals given off by electronic tags. These tags are attached to many of the state's 7,000 black bears. Each tag gives off a different radio frequency, so Alt can tell exactly which bear is nearby.

The assistant changes the radio so it picks up frequency 6.10—a bear named Kelly.

"Whoop! Whoop!" the receiver cries out. The bear must be close.

"I know where she is," says Alt. "Down in those wetlands."

"You know this bear?" asks the assistant.

Alt laughs. "I know this bear. I know her mother. I know her grandmother. I know her great grandmother. I've tagged them all."

The Bear Man

Gary Alt is a wildlife biologist with the Pennsylvania Game

PHOTO © WAYNE LYNCH

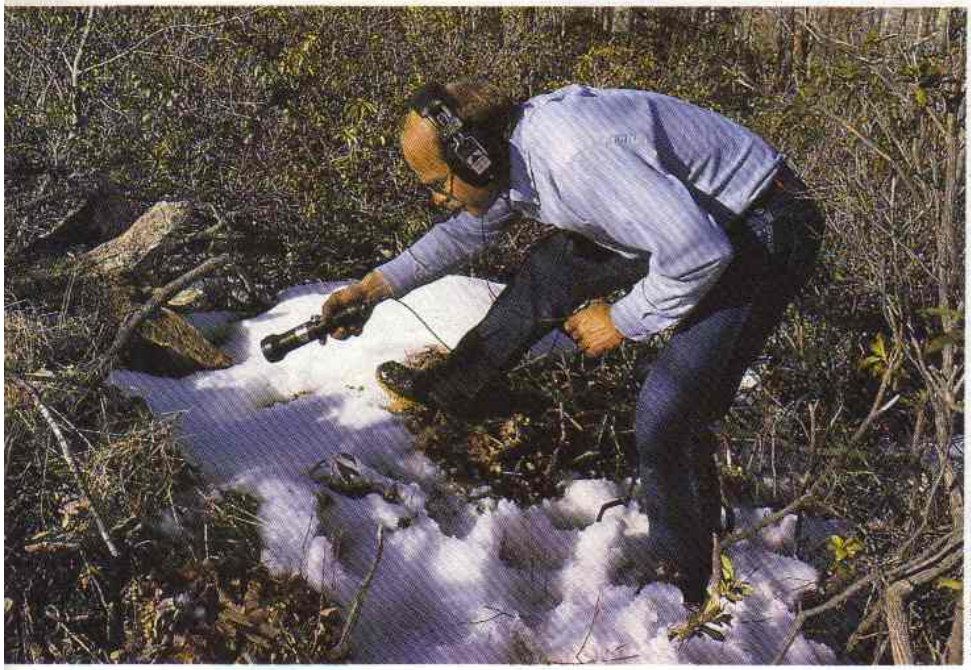


PHOTO © GARY L. ALT

PHOTO © WAYNE LYNCH

Alt, flashlight in hand and wearing headphones to listen for tagged bears, monitors the opening of a bear den.

You can't escape up a tree from a black bear. They even den up there, always making sure their cubs are above them.

Commission. He is known in his home state as "The Bear Man." And with good reason. For more than 16 years, he's been studying black bears from close up, learning more about them and teaching people what he knows. Though he's tagged and studied more than 3,000 bears, they never cease to amaze him.

"Sometimes bears will fold their paws, put their chins down and just look at you. They can make you laugh," says the 39-year-old Alt. "But when aggressive, they have incredible power. I've seen 500-pound bears climb trees no bigger around than my leg, bury their teeth up to the gums, let go with all four legs and just hang by their jaws."

One thing Alt has learned about studying bears is that studying them can be dangerous. He's been charged by them—more times than he can count. A bear paw once ripped part of the pant leg from his trousers, leaving him without a scratch.

Alt has always been fascinated by animals. "But to me," he says, "bears are the most exciting. They have the ability to kill you."

That ability is why many people fear bears. And as the black bear population increases throughout the U.S., so has the fear of them. Black bears can be found in almost every state. And with more and more forests being cut down for new homes, humans and bears are coming together like never before.

That's why Alt doesn't just study bears, he teaches people about them so they won't be afraid. Alt lectures people about bears, and takes them out on bear-spotting expeditions. They learn much about bears and Alt's work.

Hit or Myth

Alt also educates scientists about the ways of black bears. He explains that a lot of commonly held scientific beliefs about bears are incorrect.

Myth: Bears always make dens in caves. **Fact:** Alt has found them wintering in drainage pipes beneath highways. He has spotted them 30 feet up in trees, in huge nests of sticks and leaves. And he has seen them doing just fine, with no more than a blanket of snow atop them, and a bed of sticks and leaves below.

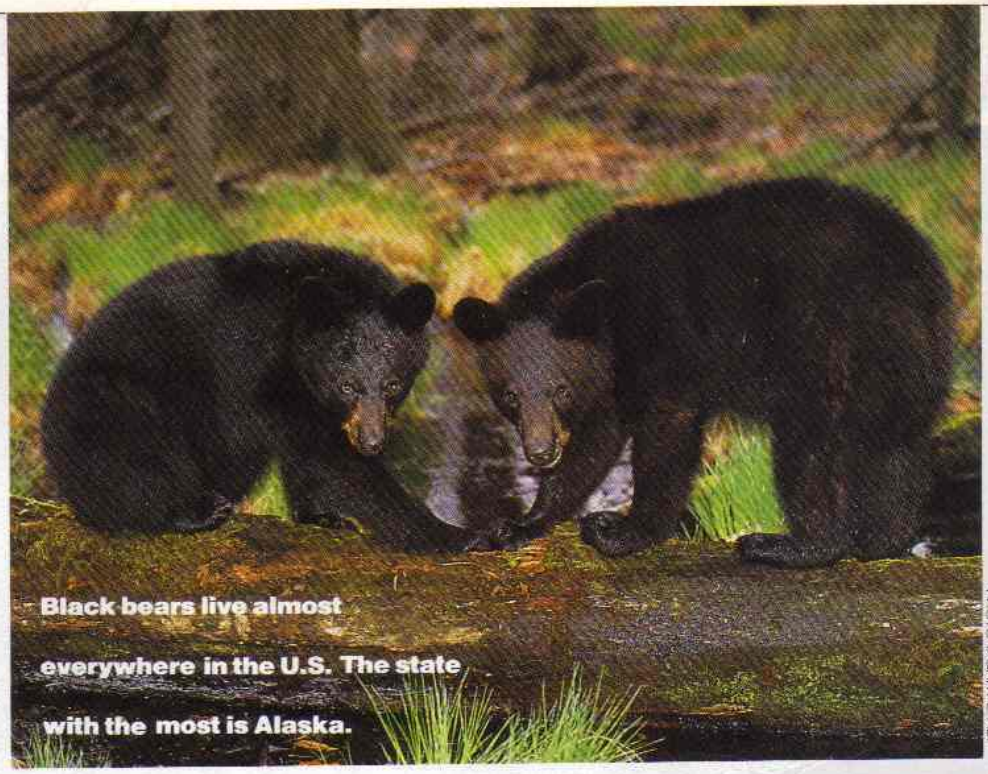
Myth: Cold weather drives bears to hibernate. **Fact:** "Hibernation has nothing to do with temperature," says Alt. "Even in Florida, black bears den for a ☞

couple of months. It's a lack of food that makes them den."

Myth: Bears reuse dens. **Fact:** In one study, Alt found bears returned to former dens less than five percent of the time. "Also not true," says Alt, "is that they'll always use the kind of house they were born in."

At birth, a black bear cub weighs around 12 ounces. Lying in a curl, a newborn cub fits in the palm of a hand. Alt has taken about every measurement imaginable on cubs.

To record size measurements, for instance, Alt must first remove a litter of cubs from their den. To do this, Alt must put himself between the mother and her young. (Fathers den elsewhere.) This can be dangerous: A myth is that bears are "out cold" when they hibernate. But the truth is, they are not deep sleepers. In other words, don't make any noises around a sleeping bear!



Black bears live almost everywhere in the U.S. The state with the most is Alaska.

PHOTO © GARY L. ALT

Unbearable Moments

Imagine freezing temperatures, snow and ice-covered rocks, a mother and cubs way down in a twisting rock tunnel 23 feet from daylight. Alt faces these conditions with only a flashlight, tranquilizer gun and courage.

"I remember one occasion when my dad was with me," says Alt. "In the den, the mother bear was making noises at me. I was worried that if I injected her with a tranquilizer (to put her to sleep for a short while), she would fall over and suffocate her cubs. I shot her in the shoulder and she disappeared farther back in the den. Suddenly, I didn't hear any sounds from the cubs.

"I tied a rope on my foot and yelled to my dad, 'If something goes wrong, pull me out.' I disappeared into the den. Know what? The mother bear wasn't asleep. There I am, inside a den facing a mother with cubs. The worst place in the world. I was afraid to yell to my dad, so I buried my face in the dirt. I could feel her come over and put her nose to my hair. Then a paw on my shoulder. I knew she could break

PHOTO © GARY L. ALT

Alt believes that holding a newborn cub is "the experience of a lifetime. People say it changes the way they look at wildlife."

A three-cub litter is a big one. Alt can tell the age of cubs, up to 50 months, by the length of their hair.

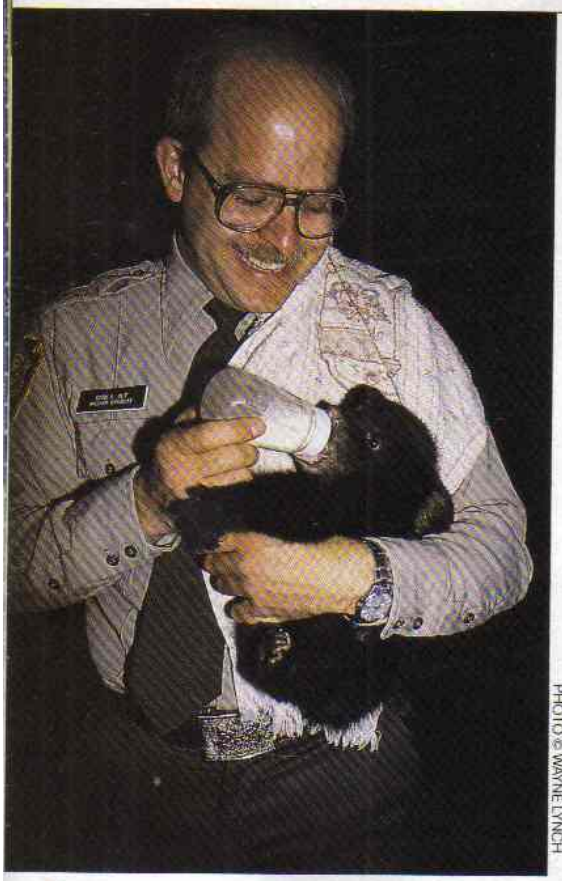


PHOTO © WAYNE LYNCH

Says biologist Tim Carr, Alt "eats, drinks and sleeps bears." And sometimes, as with this abandoned cub, he even nurses them.

my neck with one swipe. This is it, I thought. She crawled right over me, headed out about 50 feet, sat down and went to sleep."

Alt has met many bears, but a black bear has never hurt him. "I'm not aware of any deaths from black bears in the eastern U.S. in this century," says Alt. Out West, black bears occasionally kill someone, but even then it's usually when humans do something dumb—like trying to feed a bear food from their hand. "It's amazing that an animal with such explosive power can usually control it."

Alt tells people not to fear bears, but rather to respect them. It's little wonder. He has seen bears do incredible things. Many winters ago, just after a fresh snowfall, he decided to really find out how smart a bear is.

Alt flushed a five-year-old male bear out of a swamp at 10:30 in the morning. He began following the paw prints in the snow. Again and again the bear tried to lose him. Crossing a stream, it used an old cowboy trick: Instead of sticking to its course, it walked downstream in the water a good ways before crossing to the opposite bank. Where the sun had warmed some flat rocks and melted the snow, the bear zigzagged stone to stone, again fooling its tracker. Farther on, Alt stopped dead in his own tracks.

The paw prints suddenly ended. There were no trees near enough for the bear to have climbed. Where could it be? Alt stood, puzzled.

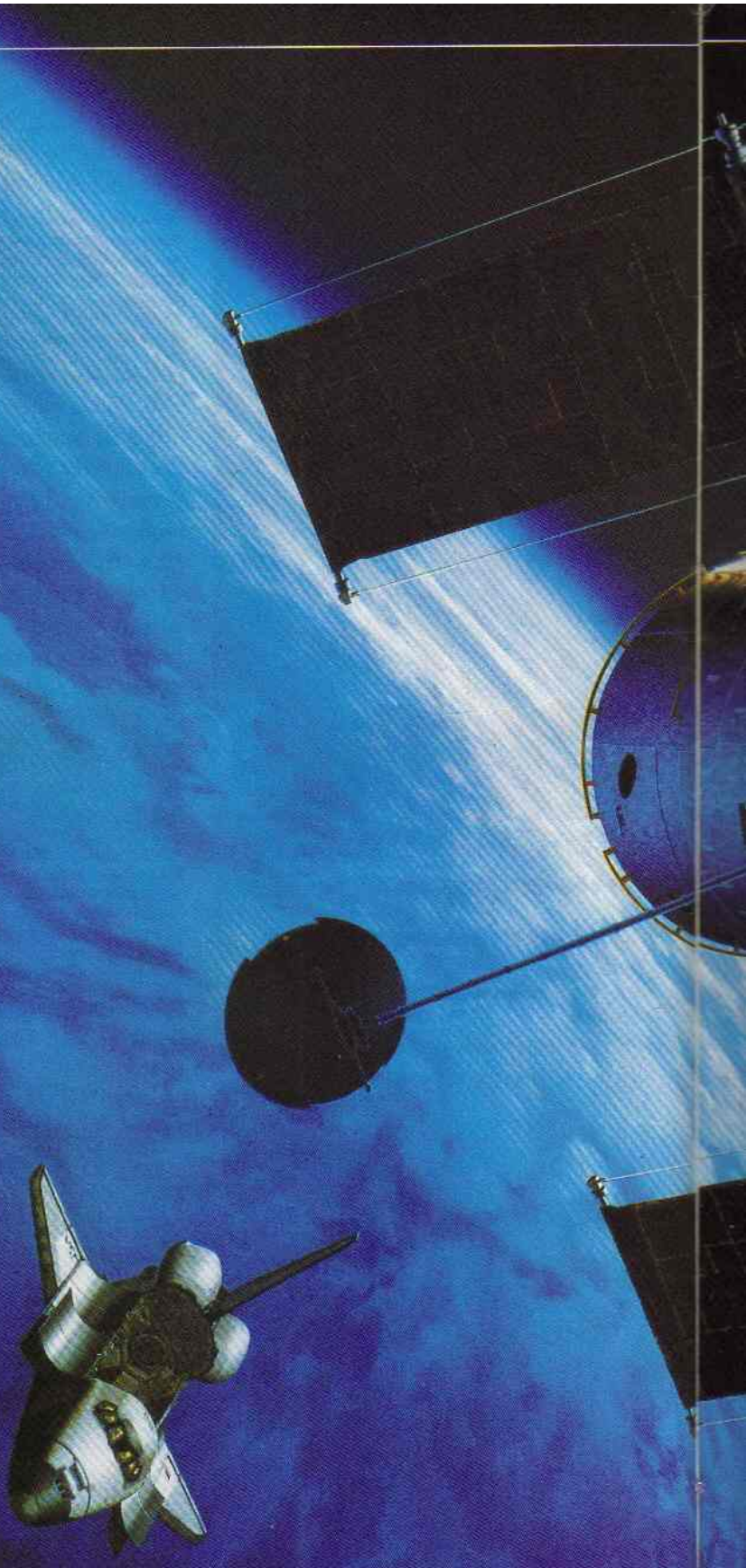
Then he looked more closely at the tracks. "There were toe marks at both ends," he says. With the grace of a ballet dancer, the bear had turned around and retraced its tracks by stepping on its own pawprints.

Six hours after he started, after following nearly 15 miles of bear tracks, Alt quit the chase, tired out. The bear had outsmarted him. And Alt was delighted that he did.◆

PHOTO © GARY L. ALT

EYE IN THE SKY

by Russell Ginns



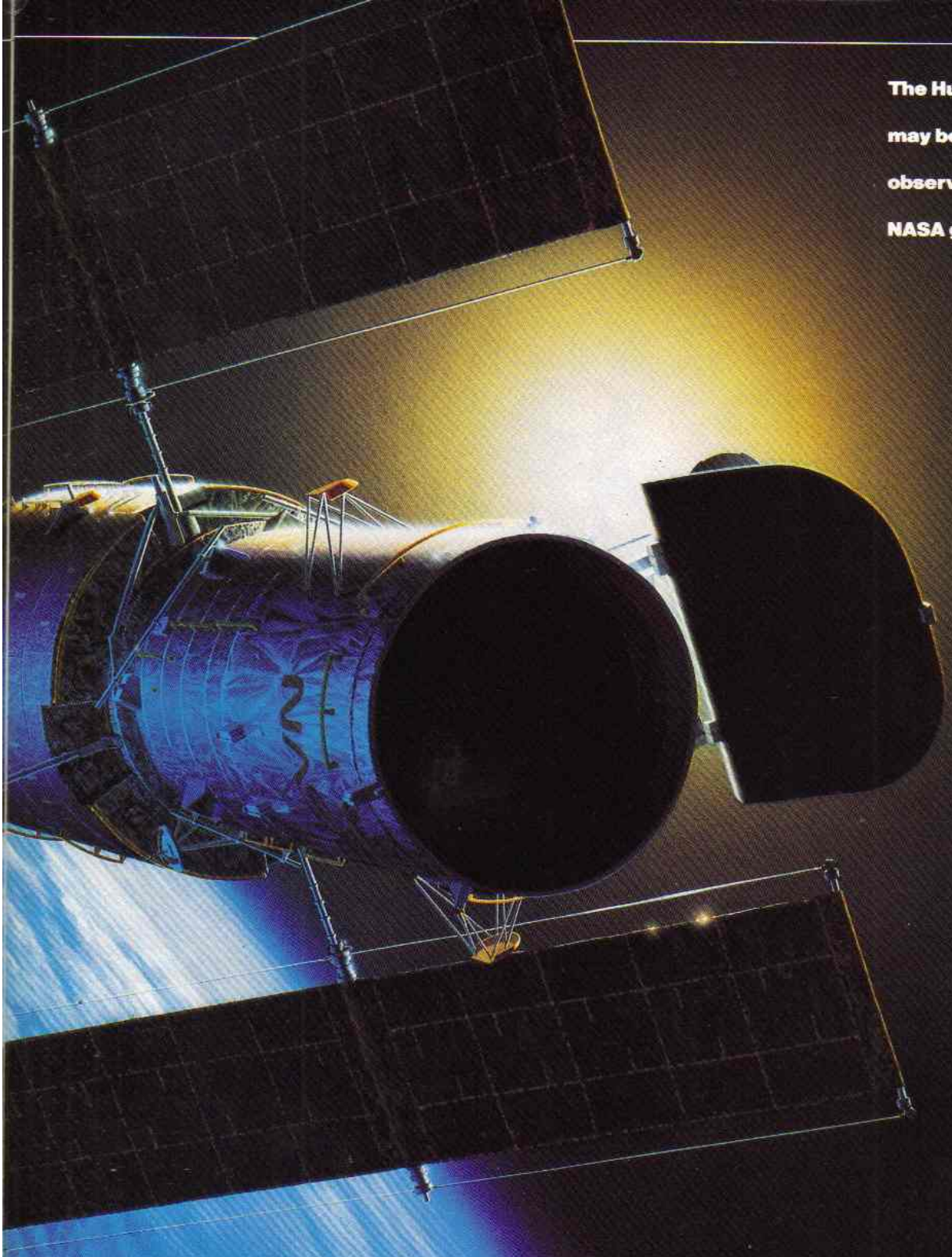
On April 24th, 1990, astronauts aboard the space shuttle *Discovery* opened its cargo bay doors and launched the Hubble Space Telescope. But when astronomers began to study the data beamed down to Earth, they discovered problems they never imagined!

Now, as the 12-ton telescope circles the Earth, NASA scientists are hard at work, hoping to make it the most powerful observatory ever built.

The launch signalled the end of almost 20 years of planning, designing and building the Space Telescope. Even before lift-off, however, there were many problems. It took years to correct difficulties with the spacecraft's guidance system. Then, in 1986, the space shuttle *Challenger* exploded. Seven astronauts were killed and all shuttle missions were grounded for four more years.

When the telescope was finally launched, dozens

PHOTO COURTESY NASA/SMITHSONIAN/LOCKHEED



The Hubble Space Telescope may be the greatest observatory ever—once NASA gets it working.

of new problems began. At first, mission control was unable to get the main antenna to open. Then, a bulging electrical cable kept the first antenna from turning correctly. And when the images began to beam down from the telescope, scientists discovered something that makes all the other problems seem minor: a flaw in one of the telescope's mirrors.

"We're still trying to figure out exactly what's wrong," says John Mangus, a NASA physicist. Somewhere on the surface of the telescope's two main mirrors, a defect is keeping the light from focusing properly.

"It's like testing a patient with blurred vision. The challenge is to figure out exactly where and what the problem is," Mr. Mangus told CONTACT.

What Goes Up Can't Come Down

Once the mirror problem is fully understood, it will take several years to correct.

"It's too risky to try and bring the telescope back down to Earth," says Dr. Al Boggess, the Space Telescope's chief scientist. "It was built in an air-tight, controlled environment. Landing it in the ☞

Scientists spent years preparing and inspecting the telescope's main mirror. Unfortunately, a flaw seems to have gotten by them.

PHOTO COURTESY HUGHES DANBURY

desert would probably contaminate the mirror and could even cause other damage."

Instead, space shuttle missions over the next four years will replace cameras on the satellite with new ones that are designed to correct the telescope's blurry vision.

"It's kind of like fitting someone with a set of glasses," explains John Mangus.

This may seem like a major setback and a lot of extra work, but most NASA scientists think that the Hubble Telescope will one day work as well as they originally planned.

"Keep in mind that it was built to last for decades," Dr. Boggess told CONTACT. "It's okay if we have to spend a year or two getting it just right."

Up Scope!

Putting a telescope in outer space is an awful lot of work. But most astronomers agree that it is well worth the effort.

The Space Telescope is not the world's largest telescope. It's only half the size of the "Big Eye" at the observatory on Mount Palomar in California. But, according to Jean Olivier, an official with the Hubble project, "It's the most fantastic telescope ever built." It will be able to see farther and clearer, and to detect fainter objects than any telescope in history.

That's because Hubble won't have to peer through the Earth's atmosphere. Light that reaches observatories on Earth must travel through an "ocean" of air. Much of that light gets absorbed by the miles of gases and vapors. Even the light that does reach the ground gets blurred along the way.

Because Hubble is already in space, light that reaches it won't have to travel through the atmosphere. So it should be able to see objects in more detail than any Earth-based telescope could, even on the clearest night.

The Space Telescope also has the ability to detect extremely faint objects. "If someone was holding a small flashlight, you'd be able to see it up to two

miles away," says Dr. Frank Six of the Marshall Space Flight Center. "The Space Telescope could detect that same light if it were coming from the moon—a quarter of a million miles away."

The farther away an object is, the dimmer it appears to be. "With the Hubble Telescope, we'll be able to see five times farther in every direction. So we'll be able to see 125 times more of the universe than we do now," says Dr. Six.

High Hopes

By early 1991, even before all the corrections are made, the Space Telescope will begin to send some information to astronomers on Earth. So what do they expect to find?

"One exciting thing we'll look for is planets in other solar systems," says Dr. Six. So far, no one has been able to detect planets orbiting any star other than our sun. That's probably because planets around other stars are too faint to be seen. "We think we have a 50-50 chance of discovering new planets with the Space Telescope," says Dr. Six.

Scientists are also hoping that the Space Telescope will reveal new clues about the fate of the universe. "We know that the universe is getting bigger because, everywhere we look, galaxies are moving away from us," says astronomer Dr. Ed Weiler. "By looking at new, farther objects, we'll be able to tell how much the universe is slowing down, and what will eventually happen to it."

But, according to Dr. Six, the most important discoveries will be ones that no one can predict.

"People ask what we're going to see with the Space Telescope and we have to answer 'We don't know yet.' That's because we'll see things that we have never seen before." ◆

PHOTO COURTESY NASA

These researchers are using a model made from Tinkertoys to study ways to correct a problem with the spacecraft's antenna.

PHOTO COURTESY NASA

Up and away! This is an actual photo of the Hubble Space Telescope as it was launched from the space shuttle Discovery.

STAR MAGIC

BUILD YOUR OWN PLANETARIUM AND STUDY THE STARS — INSIDE YOUR HOME!

What you'll need

- An empty cereal box
- Some 3″ x 5″ index cards
- A pencil
- A flashlight
- Tape
- Scissors

How to build it

1. Cut out a rectangle in the bottom of the cereal box. Make it slightly smaller than the index cards.
2. Using the pencil, punch holes in the index cards in the shape of constellations. We've drawn two at the bottom of this page to help you get started.
3. Tape one of the index cards over the bottom of the cereal box.
4. Shine the flashlight inside the cereal box at a 45 degree angle. *(See drawing.)*
5. Turn out the lights and watch the stars come out!

Here are some constellations:

ILLUSTRATIONS BY JO LYNN ALCORN

MAIL

HERE'S LOOKING AT YOU, KIDS

Dear CONTACT:

I know your new look is exciting and fun and cool, but personally, I liked the old way better. I think the old magazine made me feel cozy and comfortable. It used to make me feel welcome and warm, but this new look is cool and cold. Thanks.

Glynnis Roberts
Atlanta, GA

Dear CONTACT,

I think the new look for the magazine is a super improvement. I love all the cool designs and all the bright colors. It is definitely a great way to kick off the 1990's!

Mike Andersen
Gloucester, MA

We wanted to hear from as many readers as possible about the new design for CONTACT. *So, we gave you a questionnaire in our June issue. So far we've gotten thousands of responses. We'll print the results as soon as we've counted them. Thanks to everyone for taking part in helping us to make* CONTACT *even better!*

HOW SWEET IT IS

Dear CONTACT,

In your December 1989 issue, you had a chocolate quiz. In it was a question: "Is chocolate bad for your teeth?" The answer was "no." I don't understand why.

Rupal Patel
Edison, NJ

Rupal, people get cavities when they don't brush their teeth after eating food— any food, not just sweets like chocolate. The particles that get in between teeth produce a chemical that acts like a mild acid on the enamel. If you don't brush regularly after meals, the chemical will slowly form cavities. So it's not always what you eat but what you do after that's bad for your teeth.

We Want Mail!

Dear Readers:

We love hearing from you. Your questions and ideas help us make CONTACT a better magazine. So why not drop us a line? We can't answer every letter, but we do read them all. Send your mail to:

3-2-1 CONTACT: Letters
P.O. Box 40
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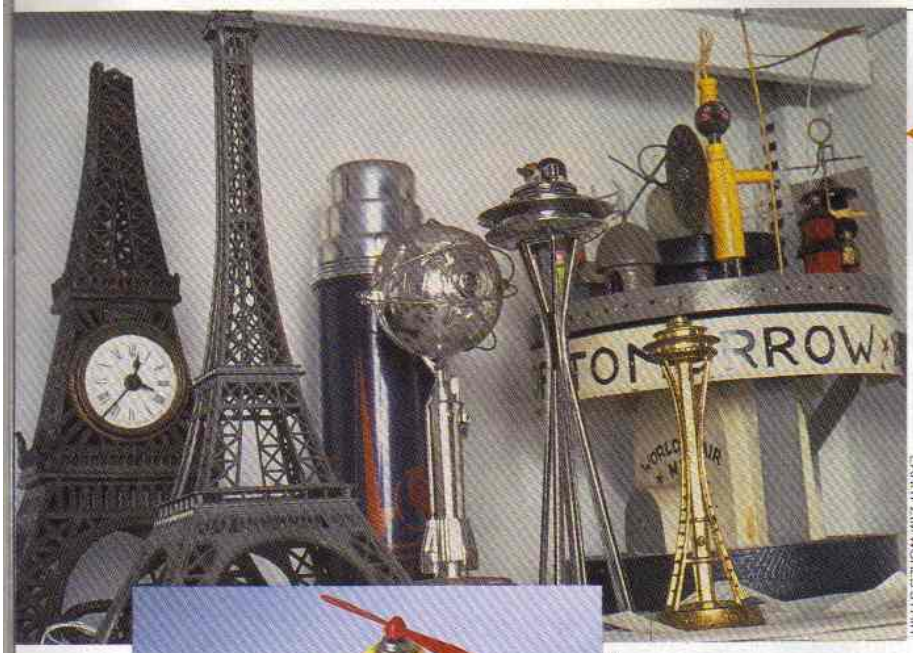


LARRY ZIM WORLD'S FAIR

Here are just some of the 3,000 to 4,000 medallions, buttons, spoons, ashtrays, paperweights, dishes and other World's Fair souvenirs to be found in Garber. The earliest items come from London's 1851 Crystal Palace Exposition. The latest are from the Vancouver World's Fair in 1984.

COLLECTION/DIVISION OF COMMUNITY LIFE NMAH

ALL PHOTOS © PAUL FETTERS DIVISION OF TRANSPORTATION NMAH

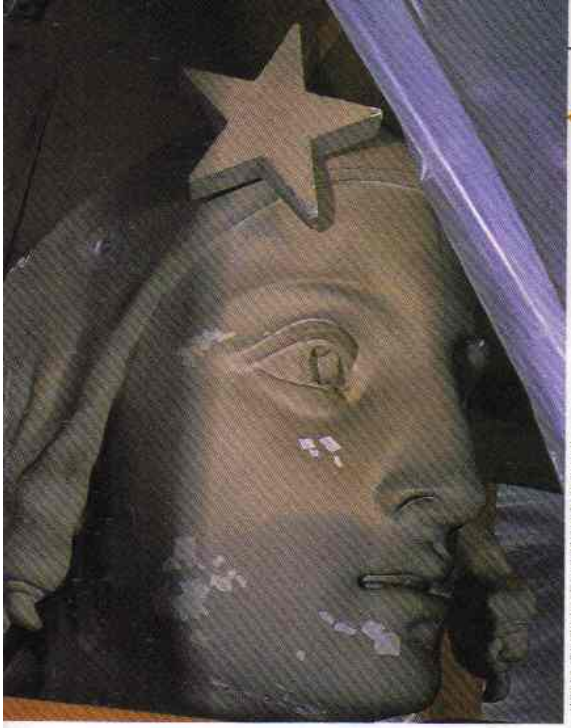
AMERICA'S

Remember the last scene in the movie *Raiders of the Lost Ark*? Indiana Jones has brought the ark back in a crate to be stored in a giant government warehouse in Washington, DC. Stretching into the distance are thousands of other crates holding who knows what treasures.

That was just a movie, and the ark probably doesn't exist. But a similar kind of warehouse does. It's called the Paul E. Garber Preservation, Restoration and Storage Facility in Suitland, MD. The Garber Facility, which is used by the Smithsonian museums, may be the world's greatest attic. Its 28 buildings hold more than 16 million amazing items that have to do with U.S. and natural history.

At any one time, only about two percent of what the Smithsonian owns is on display in its museums. The rest is either on loan to other museums around the world—or in the "attic" in Suitland. Walking down the aisles of the warehouses you'll pass any number of incredible objects, either in crates or cabinets, or out in the open.

A visitor might see a 19th-century sleigh used to deliver bread, an Eskimo seal kayak, a periscope from a German World War II sub, a machine to make



NATIONAL MUSEUM OF AMERICAN ART

"Armed Freedom" gets star billing at the U.S. Capitol. That's the sculpture that sits on top of the building's dome. And this is the original plaster model from which that bronze sculpture was made in the 1870's. The 50-foot-high plaster cast had to be cut in half to fit through the Garber facility's warehouse doors.

The early cycle here is a 1918 Indian. The car in back is a Pierce Arrow Runabout. Built in 1912, it cost a lot of money in its day: $4,000. It has a "rumble" seat in the back for an extra passenger.

DIVISION OF TRANSPORTATION NMAH

Museum specialist William Wyss polishes a rare "fireless" locomotive. Unlike most old steam locomotives, this one didn't produce its own steam. Instead, steam from an outside source was sent through a pipe into the engine's huge boiler. When the boiler filled, the pipe was removed, and the engine ran for a half day.

ATTIC

HIDDEN TREASURES OF THE SMITHSONIAN

By Curtis Slepian

screws, a stagecoach, and even a model of a Klingon space ship used in the movie *Star Trek IV*!

For the people who work at Garber, this isn't just any warehouse. It helps to know how to work a fork-lift. But it's even more important, William Wyss, a museum specialist, told CONTACT, "to have a feeling for things historical, an interest in collecting. No matter how unimportant an object seems, it has a direct connection with history."

Says museum technician Richard Siday, "Working with the stuff, you're actually holding a part of history in your hands."

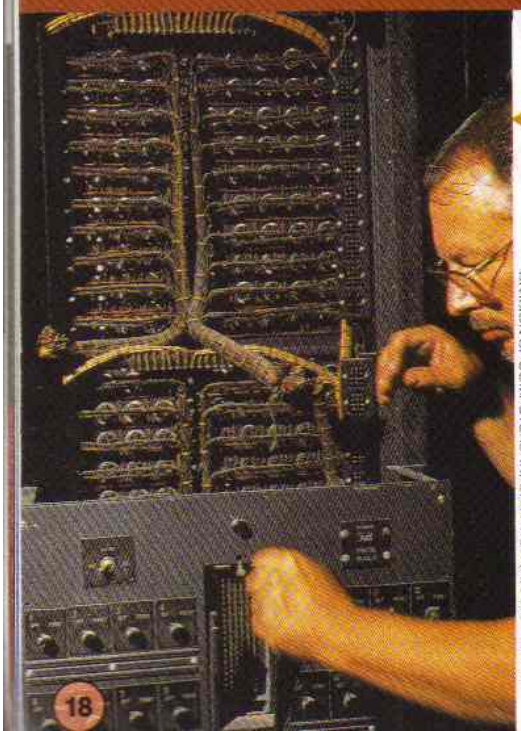
The hands holding these precious items are always covered in white cotton gloves. This is so acids on people's fingers don't harm the surface of the objects. It's by taking this kind of care, says Siday, that "this stuff will be around when the kids reading this article have their own children."

Right now, kids and their parents can tour the part of the Garber Facility devoted to air and space. The rest of the huge storage area is off limits. But CONTACT was allowed to tour the entire place, so we could give you a special peek inside the world's most incredible attic! ☞

In this large warehouse, craftspeople repair and restore old airplanes for eventual display. Among them is this fighter plane from World War I.

These—and a couple of dozen other—incredibly realistic scale-model wagons were made by an expert model-maker just for the Smithsonian. Why not try to get the real things? Well, you can't fit everything in the storehouses. Both of these models are horse-drawn wagons from the 19th century. On the left is an ice wagon, and the other hauled stones.

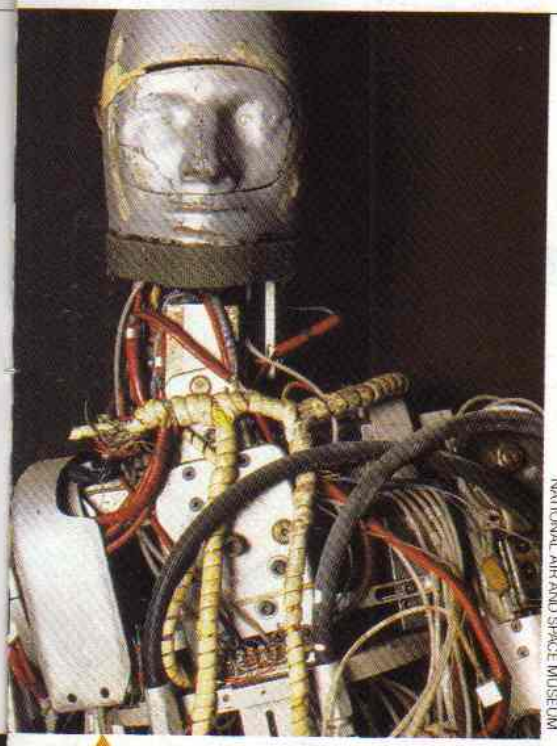
DIVISION OF TRANSPORTATION NMAH



DIVISION OF COMPUTERS, INFORMATION & SOCIETY NMAH

At the end of an aisle filled with old adding machines and parts from missile guidance systems is a large, cabinet-sized computer. It is a section from ENIAC, the world's first electronic calculator (or "electronic brain," as it used to be called). Built in the early 1940's, before the days of transistors and microprocessors, ENIAC was powered by thousands of vacuum tubes. This and other computers are displayed in "Information Age," an exhibit at the Smithsonian's Museum of American History.

Here's a shelf from one of 22 cabinets filled with toys, most of them made of cast iron. The Smithsonian collects toys because they can teach us about life in America. For example, when cars came on the scene, kids lost interest in toy wagons— they seemed old fashioned. Later, toy planes and rockets replaced toy cars as kids' fave raves.



NATIONAL AIR AND SPACE MUSEUM

Among the Mercury test capsules, ejector seats, helicopters, fighter planes and other air- and spacecraft in the Garber facility is this "android." NASA built it to test space suits. The suit was placed over the dummy. Then the robot's arms, legs and joints would move back and forth. This told NASA how well the suit held up.

DIVISION OF TRANSPORTATION NMAH

The Smithsonian has preserved all kinds of historic vehicles: In the center is a "sprint" car. It was made for racing on sand, and goes up to 90 mph. On its left is a hand-drawn fire engine from 1854. At right is a "turbine" car, which is powered by a jetlike turbine engine. Made by Chrysler in 1963, it is one of only 10 such cars in existence.

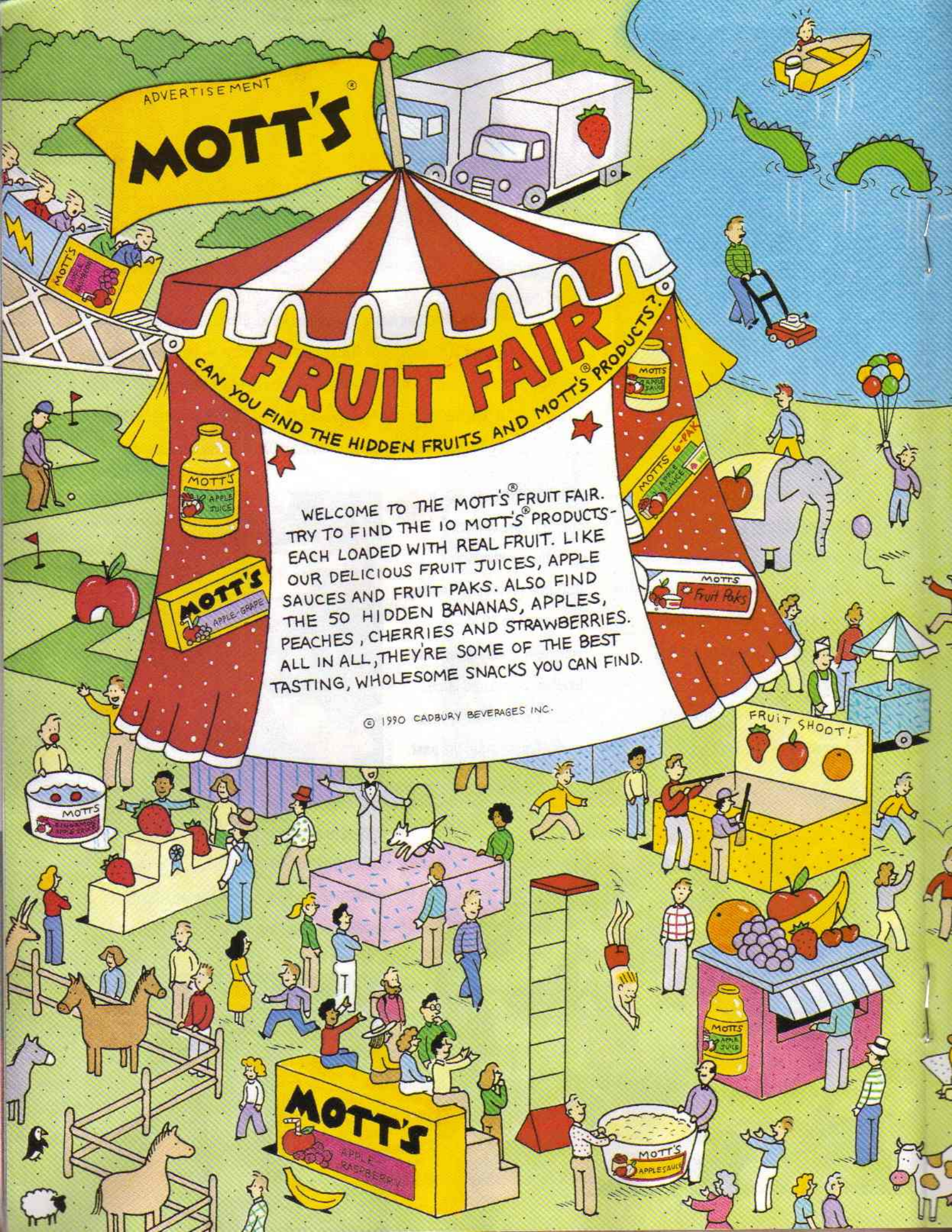
What a card! Norcross, a greeting card company, gave the Smithsonian 450,000 of its cards, dating from 1924 to 1974. A volunteer is arranging them by date, theme and price. These cards will offer historians glimpses into the past.

ARCHIVES CENTER NMAH

DIVISION OF DOMESTIC LIFE NMAH

Parked in a cabinet are parking meters from the 1950's and '60's. They are part of a collection given to the Smithsonian by a man who once worked for a parking meter manufacturer.

DIVISION OF TRANSPORTATION NMAH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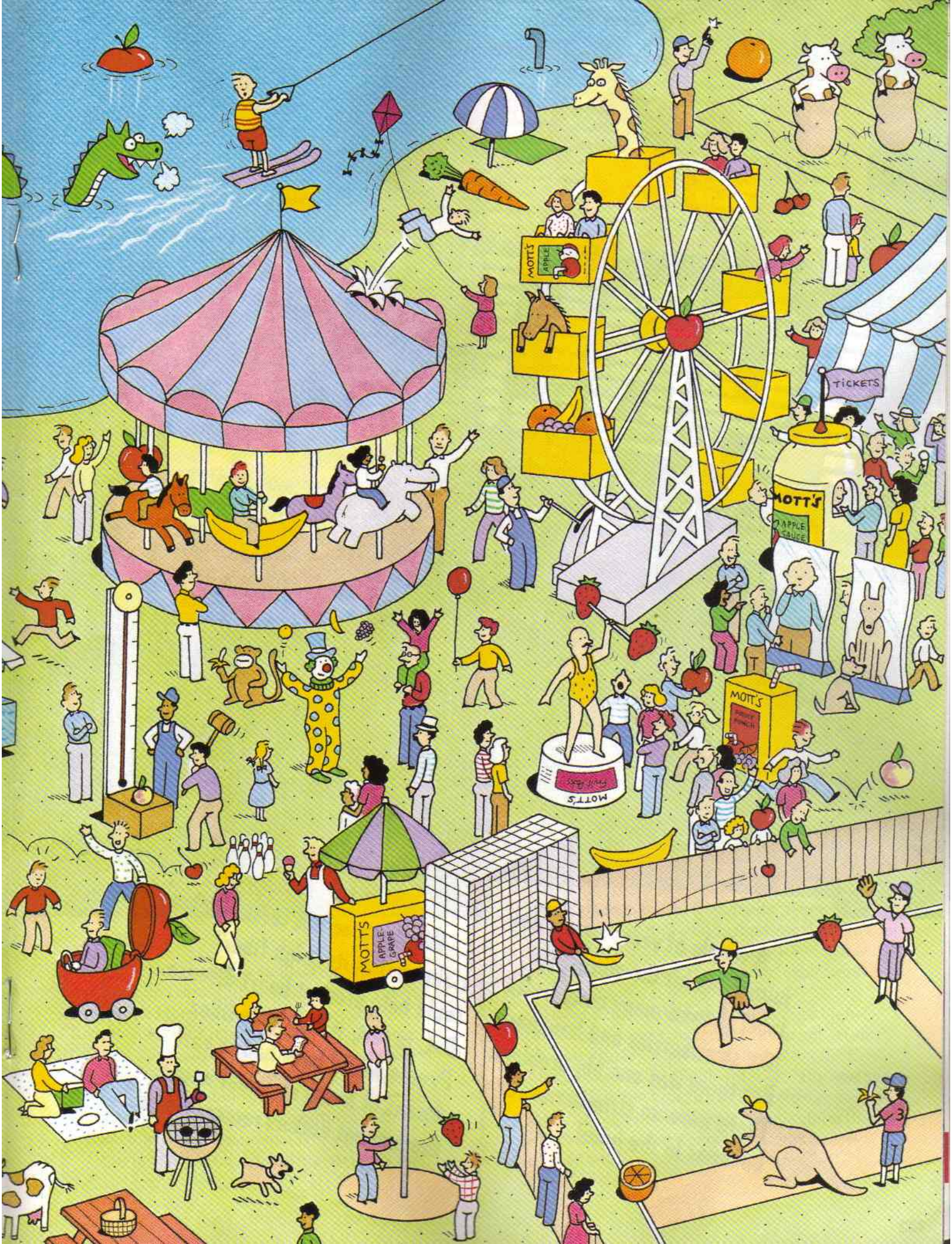
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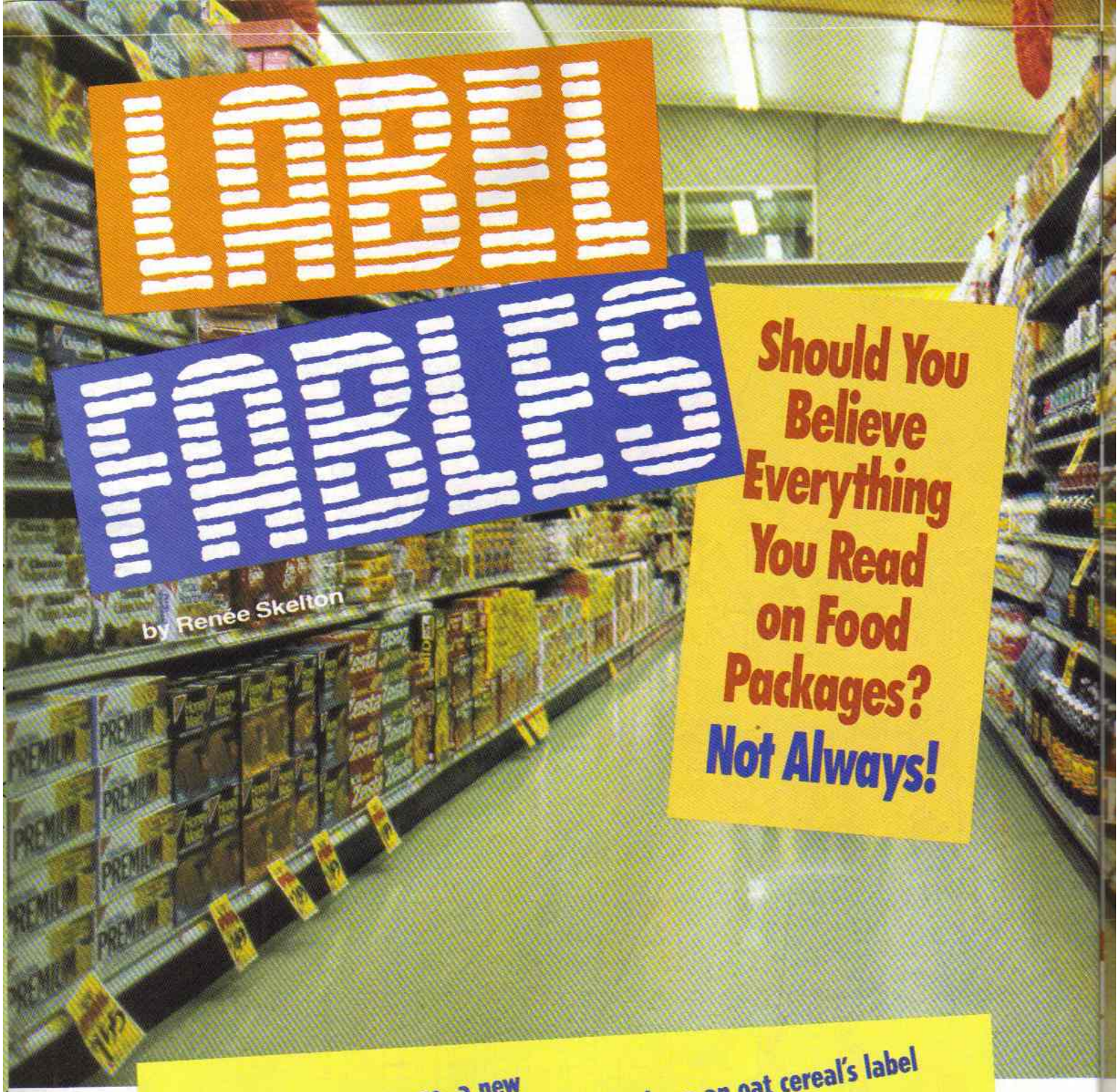


LABEL FABLES

by Renée Skelton

Should You Believe Everything You Read on Food Packages? Not Always!

A couple of years ago, a new juice drink hit the stores. Its label showed many tasty fruits, like strawberries and bananas. But there was one big problem: There were no strawberries or bananas in the juice!

Words on an oat cereal's label claimed that its "high fiber" could help prevent heart disease. But, in fact, it had little fiber. People would have had to eat dozens of bowls of cereal to get the amount doctors recommended.

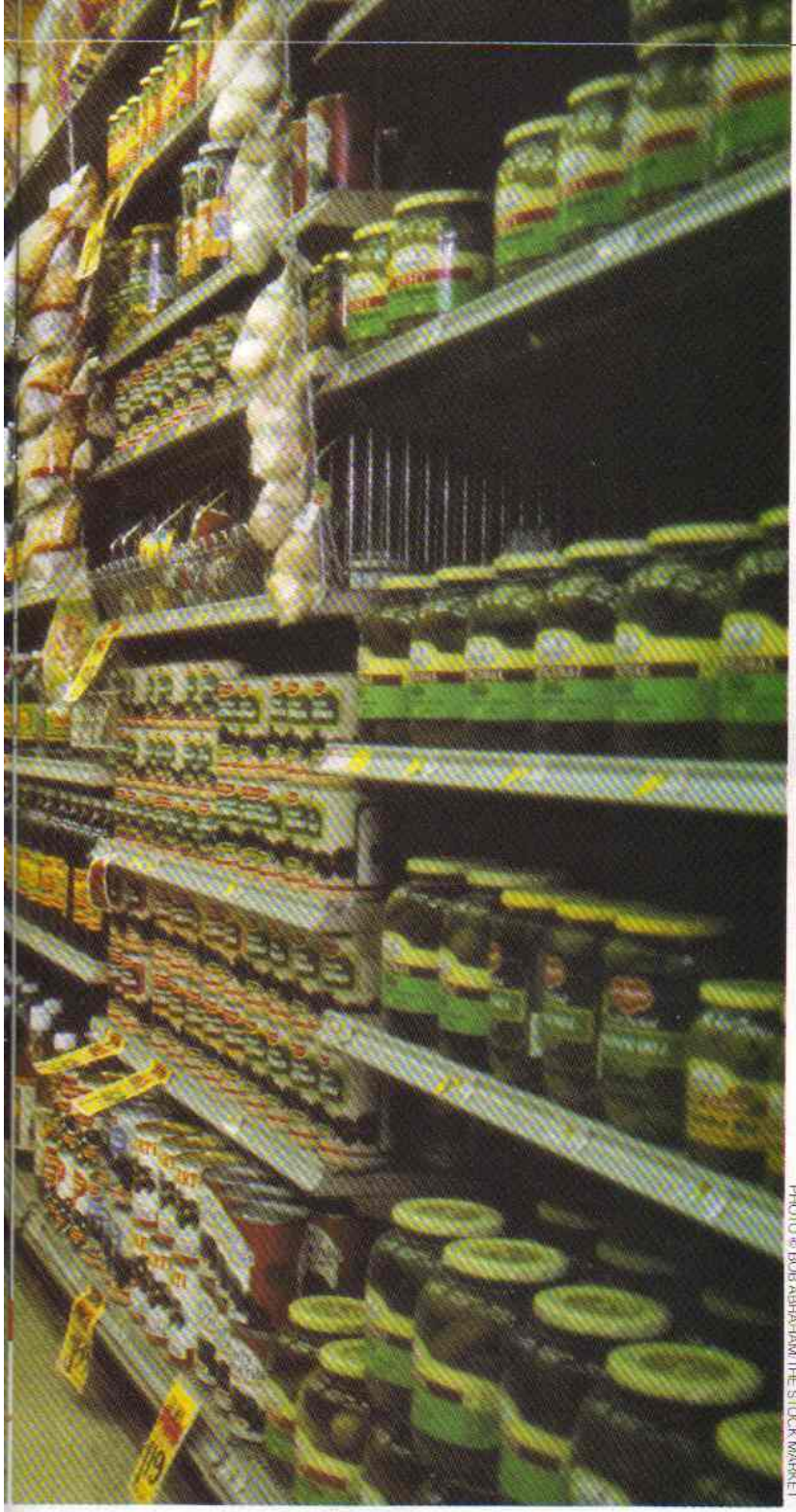


PHOTO © BOB ABRAHAM/THE STOCK MARKET

The U.S. government stopped makers of the juice and cereal from making these claims. But how did they get away with the claims in the first place? Aren't labels and ads supposed to give truthful information about foods? The answer is yes. They're supposed to. And many do. But some companies have found ways to stretch the truth to make their foods seem more healthful so that shoppers will be more likely to buy them.

Until recently, food makers made claims that may have been misleading. But many consumers complained. So now the Food and Drug Administration (FDA)—a U.S. agency that monitors the quality of food products—is coming up with stricter rules. The FDA will make sure labels give buyers better information on what's in the food they are buying.

Empty Words

"Light," "natural," "high-fiber." You see these words on many labels. But they do not always mean what you may *think* they mean.

"Most people think 'light' means low in fat or calories. But 'light' can mean anything from light in color to light in texture," says Eileen Kugler. She is with a group that is working to help make labels easier for people to use.

Watch out for the misuse of "natural," too. Many people think natural foods have no artificial ingredients. That's not always so. Food makers can (and do) put "natural" on anything they choose.

"The FDA doesn't have a definition for 'natural,'" says Dr. Ed Scarborough, director of the FDA's Office of Nutrition and Food Safety. "So manufacturers have been misusing the term. But we're coming up with new definitions for terms like 'Natural' and 'Light.' If companies don't meet the definitions, they won't be able to use these terms on their labels."

The term "high fiber" is also misused on labels. Fiber is tough material from fruits, vegetables and grains that is not digested as it passes through the body. Oat bran and wheat bran are fiber. Some studies show that fiber might lower cholesterol and prevent some cancers.

"We need fiber (20-30 grams a day), so high-fiber breads, cereals and crackers are important," says Jane Hurley. She's a nutritionist at the Center for Science in the Public Interest. "But seeing those words doesn't mean you are getting something high in fiber. Some cereals claim they are high fiber but have only two grams a serving—while others have 12 or 13 grams." ☞

The FDA is also coming up with an exact definition for high fiber. Until then, look for grams of fiber per serving on the side of the box of "high-fiber" cereals. If it doesn't have 8 grams per serving, it's not high fiber—no matter what the front of the box says.

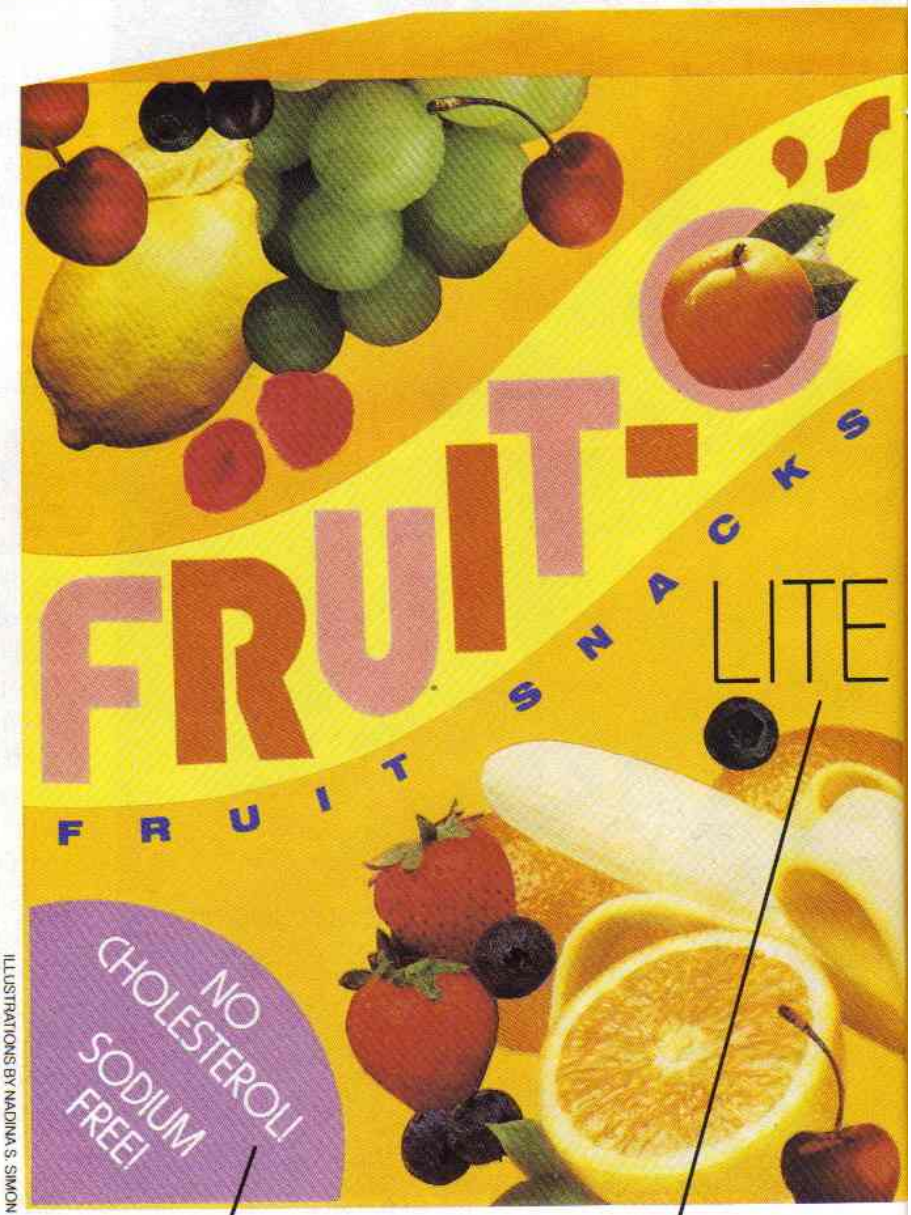
Hold the Salt

In some cases, descriptions on packages don't mean what they say at all. Take "sodium free." Too much sodium, or salt, can cause health problems like high blood pressure. In fact, people should have less than 2,500 milligrams a day. Because many shoppers want to have less sodium in their diet, many foods are now labeled "sodium free."

"But the term 'sodium free' is misleading," says Shirley Stark. She is a lawyer who works for New York State to make sure companies use truthful labels and ads. "Those foods that are supposedly 'sodium free' can have up to 5 milligrams of sodium. The same is true of 'fat free.' A fat-free salad dressing can have a certain amount of fat in it." That might sound strange. But it's legal. So you have to know the rules to know what you're buying.

Serving sizes are another problem. "Some companies list smaller serving sizes to make more of the good news and less of the bad," says Chris Lecos of the FDA. "For example, suppose you're on a diet. You eat a small 10 ounce can of soup that claims to have 'less than 50 calories per serving' and think you've had just 50 calories. Then you look at the label and it says there are four servings. You've *really*

Read Between the Lines



ILLUSTRATIONS BY NADINA S. SIMON

● Check "No Cholesterol" foods for fats. Too much cholesterol can block your arteries. Try to have less than 300 milligrams a day. Avoid saturated fats like lard, coconut oil and palm oil.

● Read the small print on labels of "Light" or "Lite" foods. If the label says, "New Lighter Flavor," or "Light, Crispy Texture," there's a good chance it's not low calorie.

● Check the "expiration" or "sell by" date on foods like milk, fresh juice, butter, whipped cream, cheese, eggs, bread, cake and meat. This will allow you to be certain your food is fresh.

FRUIT SNACKS

EXPIRES APRIL 1, 1989

NUTRITION INFORMATION	
Serving Size	2 oz.
Servings Per Package	8
CALORIES	500
PROTEIN	3g
CARBOHYDRATES	20g
FAT	30g
CHOLESTEROL	0g
SODIUM	5g
PERCENTAGE OF U.S. RECOMMENDED DAILY ALLOWANCES (% U.S. RDA)	
PROTEIN	4
VITAMIN A	**
VITAMIN C	20
THIAMINE	8
RIBOFLAVIN	8
NIACIN	4
CALCIUM	2
IRON	2
VITAMIN D	**

**Contains less than 2% RDA

INGREDIENTS ENRICHED FLOUR (FLOUR, IRON, NIACIN), SHORTENING (HYDROGENATED SOYBEAN OIL), BAKING SODA, DEXTROSE, CORN STARCH, SALT, CITRIC ACID, SODIUM ASCORBATE, ARTIFICIAL FLAVORS AND ARTIFICIAL COLORS

FRUIT-O's Company
New York, NY 10023

● Check serving sizes on foods that claim they are low sodium, light, low calorie or high fiber. Is the food low in calories because the serving sizes are too small, for example? Make sure the serving size makes sense for the food on the package.

● Too much sugar is unhealthy. Some foods hide the amount of sugar they have by listing sugar under many different names on the label. Sucrose, dextrose, maltose, fructose, corn syrup and molasses are all sugars.

● Ingredients are listed in order— from what there's most of down to what there's least of. Compare ingredients on different brands of the same type of food. For example, if your grape drink lists grape juice third, after water and corn syrup, it's mostly water and sugar. A drink with grape juice listed first has more real juice.

had nearly 200 calories!"

Few people serve four people from one small can of soup. The serving size on the label makes no sense. But, by law, labels must give nutrition information—including calories—by serving. So the smaller the serving, the less calories, fat or sodium the company has to claim on the label.

The FDA wants to make serving sizes the same for each kind of food. Each serving size would have to be close to what a person would really eat.

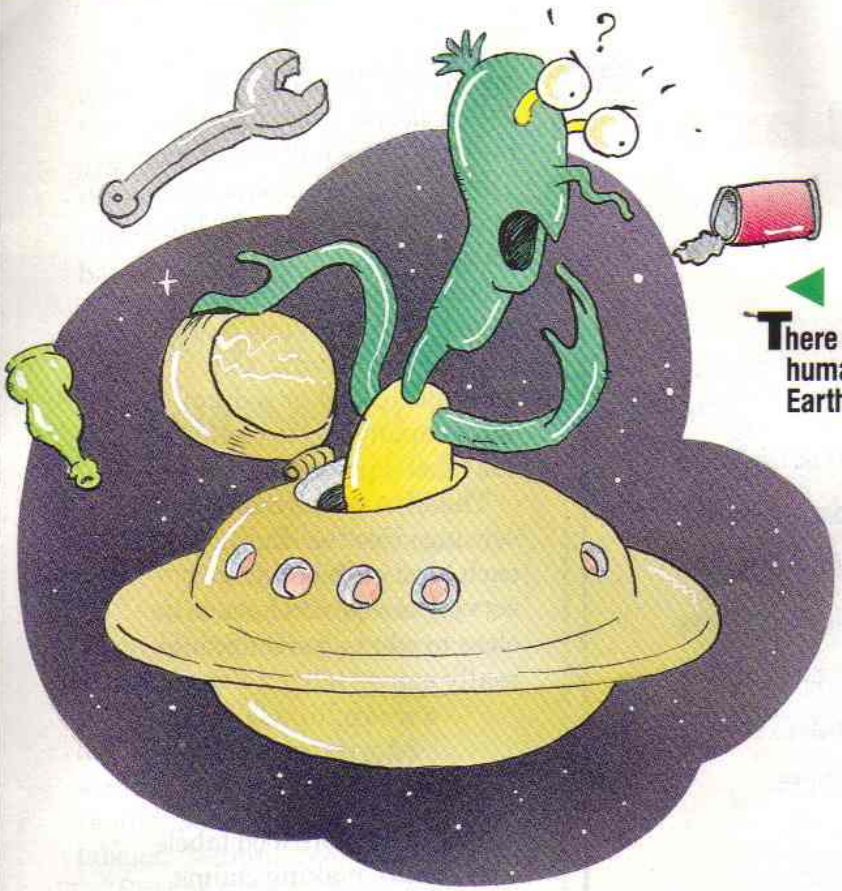
New and Improved?

More and more food labels and ads are making claims that they have something in them (or left out of them) that can prevent disease. For example, some labels on cooking oils claim to lower cholesterol. Dr. Scarbrough says many of these health claims are "exaggerated." But the FDA has not yet worked out rules for stopping all of the misleading ones from getting on labels.

Defining all the words used on the packages and ads will take time. Deciding which health claims are true and which are not is even more difficult. A food maker would have to prove that a claim is supported by most experts in the health field—but this won't be easy.

The FDA hopes to work this out over the next couple of years. "There are problems and the FDA is tackling them," says Kugler. "But it's going to take awhile before you see an improved label. Don't look for it tomorrow." ◆

FACT



There are now more than 20,000 human-made objects orbiting the Earth. All but 300 of them are junk.

Americans take 7½ billion photographs each year.

Every day, your body loses half a quart of water through breathing.

ILLUSTRATIONS BY CHARLES PEALE

ODDS

The tropical orb weaver spider can spin a web up to 15 feet across.

In one basketball game, a player can be expected to travel up to eight miles.

Emperor penguins can withstand temperatures of *minus* 110 degrees Fahrenheit.

THE TIME TEAM

FUTURE SHOCK

By Curtis Slepian

Sean Nolan yawned. Mr. Giddy, the science teacher, was going over the environment stuff again, and Sean was bored.

"Mr. Nolan," said Mr. Giddy, "what is the greenhouse effect?"

Sean straightened up in his seat. "Oh," he stammered, "that's...that's when you grow plants in a greenhouse and–"

"Never mind, Mr. Nolan. Miss Lopez?"

"That's when the Earth's climate becomes warmer because of pollution," said Jenny.

"Very good, Miss Lopez," said Mr. Giddy.

Sean glared at her.

On the way out of class, Jenny passed Sean and said, "Don't you ever read a newspaper?"

"I know more about the environment than you do," answered Sean. "I'm just not a show-off."

Both teenagers continued arguing as they walked downstairs to their lockers. In the empty hallway, Jenny took the tachyon device out of her pocket. This, the world's only time-traveling machine, was a science fair project no one knew existed.

Jenny said angrily, "You're not going on any more time trips with me."

"That's what you think," said Sean. He grabbed the machine out of her hand, accidentally hitting the start button. Suddenly, the world went black. An instant later, the teens still found themselves in a hallway. But it wasn't the school hallway–this one stretched as far as the eye could see.

The Endless Hall

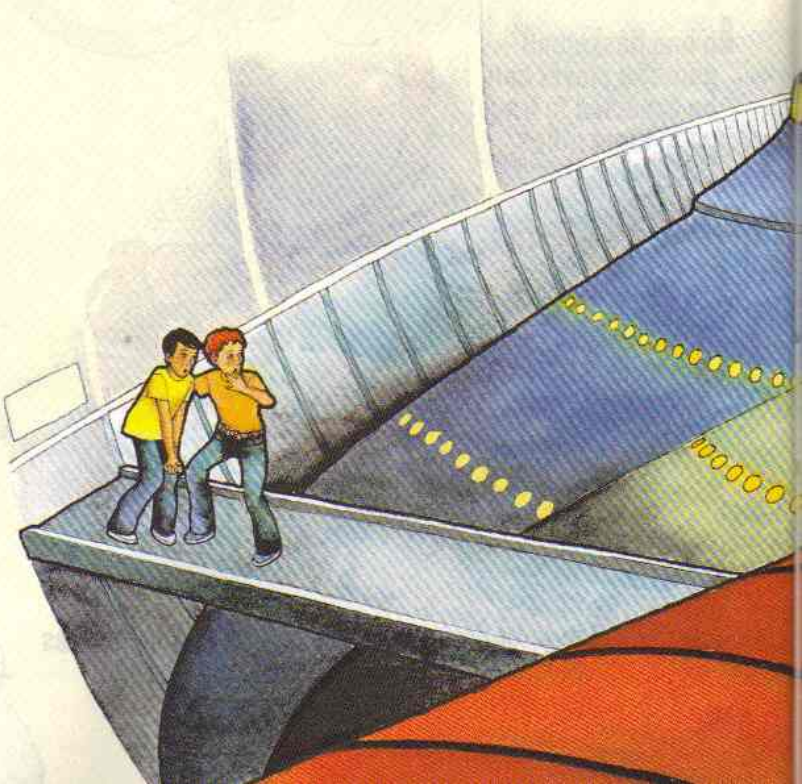
"You are major league stupid," said Jenny. "Who knows where we are?"

Sean was a little embarrassed, but covered it up: "Let's look around. It looks like a neat place."

The smooth, white walls of the corridor gave off a soft glow. The teens walked down the silent hallway for an hour without seeing anything–no graffiti, no ads, no way out. Then Sean spotted it: a door!

They pulled back a bar and slowly pushed the door open. When they stepped through it, their jaws dropped. They were standing on a street in a huge city. Buildings made of plastic stretched endlessly into the distance. The streets were packed with people. There were no cars, only bicycles. The only aircraft were powered by people pedaling. The planes, flitting silently over and between the buildings, flapped their thin wings like butterflies.

Strangely, forests grew on the tops of the buildings, and trees and vegetation hung over the sides. Even stranger was the sky–there was none! Instead, there was a concrete ceiling that curved down to form concrete walls. Lights attached to the high roof made it seem as bright as day. This place must be underground!



The door behind the teens closed with a thud. You couldn't tell that section of the wall was actually a door. Covering the wall was a sign that said:

> **You Are Now in Level 46.**
> **Please Do Not: Litter**
> **Burn Fossil Fuels**
> **Waste Resources**
> **Pollute.**
> **Have A Nice Day.**

"Hey, you two. You're in a no-standing zone. Keep moving."

A police officer was waving at Sean and Jenny to walk. They quickly joined the huge, constantly moving crowd of people.

Future Tense

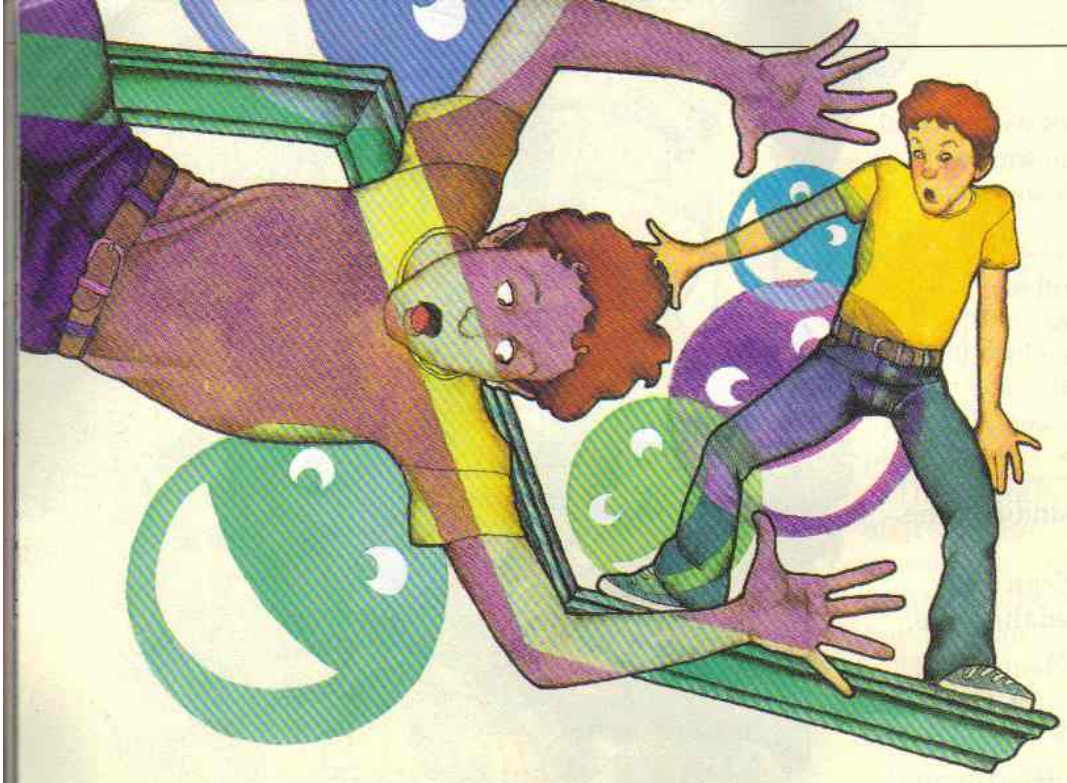
"Where on Earth are we?" wondered Jenny.

"Who knows? But I can tell you when we are."

Sean pointed to a clock on the side of a building. It read "3:00 p.m., November 16, 2098." They had been transported more than a century into the future!

"Time traveling makes me hungry," said Jenny. "Let's go into this fast-food place." At the counter was a machine with spigots that looked like a soft ice cream dispenser. But instead of "chocolate" and "vanilla," one spigot was labeled "Bio-engineered hamburgers," and the other "Bio-E deluxe cheeseburger and bun with lettuce, tomatoes, and french fries." The ☞

ILLUSTRATIONS BY BOB PEPPER



"cheeseburger deluxe" flowing out of the spigot and into a cup was gray paste.

"I just lost my appetite," said Jenny.

Sean asked a man on line how far underground they were.

Instead of answering, the man pressed his shirt button. Instantly, a computer voice came out of his tie: "We are presently 20 miles underground."

"Pretty good, huh?" said the man. "I'm wearing the latest in portable computerized clothing. They make it in level 101 in South Korea."

"Can I ask it how we can get above ground?" said Jenny.

The man turned pale and sputtered, "You've got a polluted mind! I oughta call the cops!"

As he began to shout, the two confused kids darted out of the store and into the crowd.

"What did I say wrong?" asked Jenny.

"Who knows? That guy was strange. Hey, look, a video arcade. C'mon!"

Inside the arcade, people were standing in front of blank boxes with their eyes closed. Sean spotted a coin on the floor. He picked it up and put it in the slot of an unused box. Instantly, he was standing on a ledge on the top of a skyscraper. The game was taking place in his mind! Sean was so surprised, he almost fell off the ledge. Suddenly, out of nowhere, big balloons with grinning faces began to move towards him.

Sean realized he had to walk along the ledge to the bottom of the building before the balloons knocked him off–that was the object of the game. As he started to walk, without warning a section of the ledge disappeared. Sean was too slow to jump across the empty space. He started falling. Just before he hit the sidewalk, he was back in front of the video machine. The game was over!

"Excellent!" said Sean.

A girl who was watching said, "You didn't even make level two–that's polluted. My high score on 'Down Boy' is level 138."

The girl's name was Kool Moe D. "My parents named me after some old-fashioned singer their parents once listened to."

Sean said, "This is the most crowded city I've ever been in."

Kool Moe D. replied, "Level 46 isn't crowded– there are only 860,000 people living in my apartment building. Level 45–now that's crowded."

Jenny said, "I have a question: How can we get above ground?"

Kool Moe D. looked shocked. "You shouldn't use dirty words like that one. The polite word for up there is Slimeworld."

The two teens looked at each other–this place was weird!

"Why doesn't anyone live above–I mean, on Slimeworld?"

The Terrible Truth

Kool Moe D. said, "You sound like you just got off the elevator. But I'll explain.

"By the year 2025 the Earth was so polluted that living there became dangerous. The governments of the world built underground cities, which produce their own water and use trees to make oxygen.

"Only robots can survive in Slimeworld and it's illegal to go there (not that you'd want to), or even talk about going there. The farther away you live from it the better. My dad always says he wants me to work my way to the bottom."

She took out of her pocket a miniature TV. "Channel S plays live scenes from Slimeworld 24 hours a day." With the press of a button, a 3-D holographic image projected a foot past the TV screen. It showed a world without people, ruined by the greenhouse effect and pollution. Oceans covered parts of cities. The air was as dirty as the seas. No ozone layer stopped the sun from parching the land. It was a terrible sight.

Sean and Jenny almost started to cry. How

THE TIME TEAM

could this have happened?

"Where can we go to learn more about Slimeworld?" asked Jenny.

"Bottommost. Level 150. That's where the government of the Western United Underground States is located. But it isn't easy getting into that level."

Kool Moe D. said goodbye and went into a sporting goods store called The Great Indoors.

At the center of Level 46 was an elevator shaft. As big as a train station, it reached the city's ceiling. The two kids took an express elevator to Level 150. When they got off, they had to stand on line at customs.

As people passed a security guard, they stuck a finger in a metal box. The teens nervously placed their fingers into the side of the machine. Suddenly, the bored guard jumped up. She grabbed both kids and said, "Come with me."

She took them to a small room. When the guard left, Sean said, "The future gives me the creeps. I can't figure out what's going on."

Caught!

That moment, a man entered the room and said, "My name is Chicago Illinois. What are your names?"

"I'm Sean, and she's Jenny. Why are you holding us?"

"When you stuck your finger in the machine, it scanned the chromosomes in your fingernail. Everyone's genetic pattern is different, and each pattern is on file. Neither of yours was on file. According to our records, you don't exist. Which can only mean one thing: You come from Slimeworld."

"But isn't it impossible to stay alive there?" asked Sean.

The man stared at Sean for a moment. "We'll get the truth out of you later. It's 6 p.m. I'll be back in 10 minutes."

Outside the door they overheard a guard snicker, "I hope they like their cell, because they're spending the rest of their lives in it."

Jenny said, "We've got to escape."

"How?" asked Sean.

"Hit the machine."

Sean shook his head. "Let's first learn more about the future."

"We can't take a chance."

"I guess you're right," he sighed.

"Here goes," said Jenny, and pressed the button on the time machine.

Suddenly, they were no longer in the cell, but next to a startled pedestrian on Level 82. A clock on a building said 5:00 p.m. November 16, 2098.

Jenny said, "The machine moved us up a few levels and back in time one hour. We're so deep inside the Earth, gravity must be affecting the machine."

"I've got an idea," said Sean.

"That's a first," smirked Jenny.

They took the elevator to Level 46. There the kids searched all over for the door in the wall they first came through. By the time they found it, it was 6:15. "By now they'll know we're gone," said Sean.

Just as a police officer spotted them, the two teens pushed against the wall–the door opened! They stepped into the hallway and closed the door behind them. Several hundred yards later, they came upon an elevator. As they pressed the button, they heard the sound of feet running. When the elevator arrived, the teens rushed in and pressed the button for Level 0–Slimeworld.

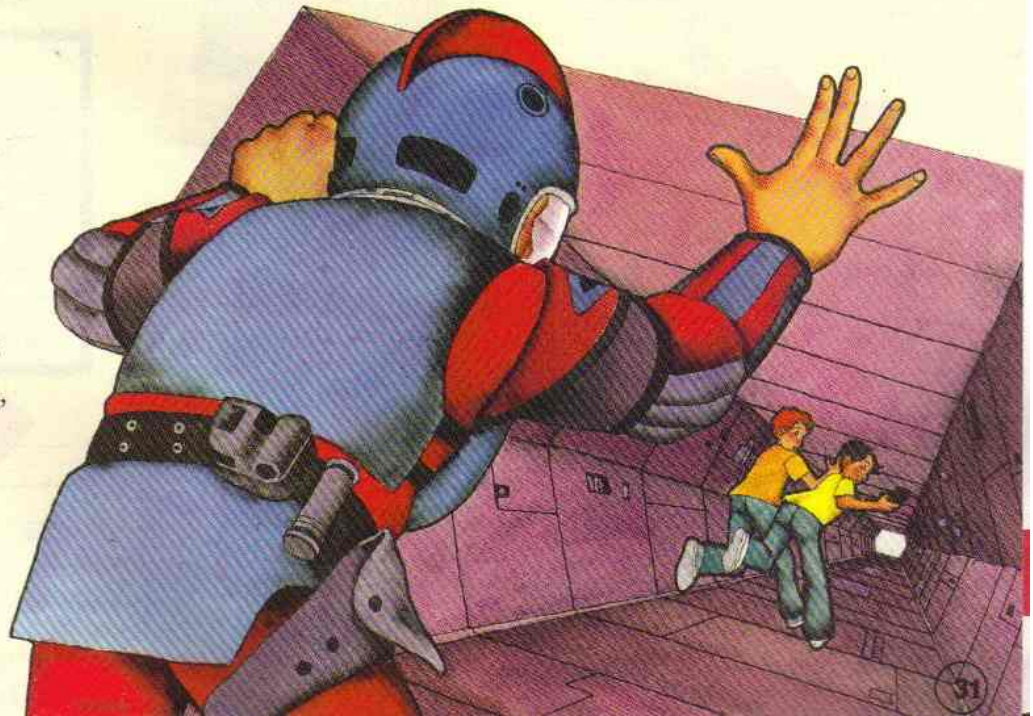
The elevator left them off in another white corridor. At the end of it was a large door. On it was a warning: "Extreme Danger–Do Not Exit."

"Now what do we do?" said Jenny.

A moment later, the elevator door opened again. Out ran two officers and an angry-looking Chicago Illinois. "Don't move!" he shouted.

Sean looked at Jenny. They opened the door...

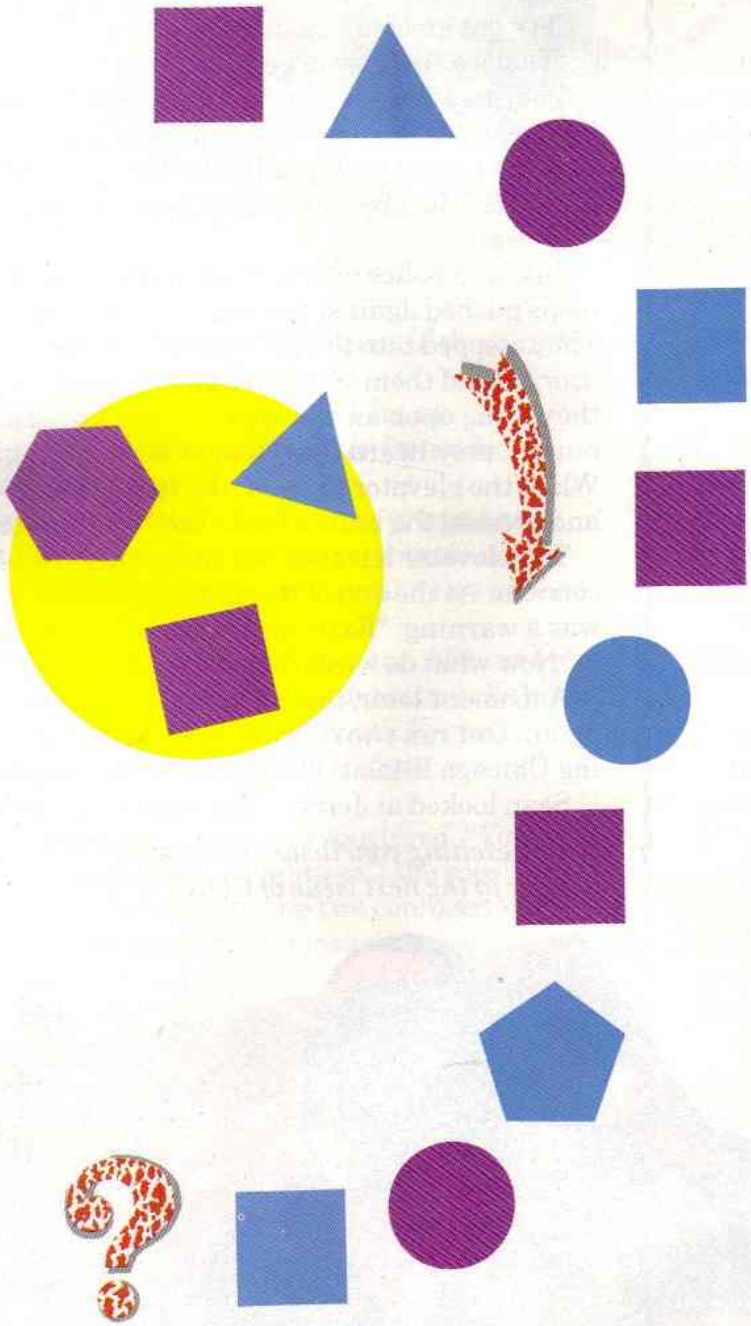
The exciting conclusion to the story will appear in the next issue of CONTACT!



SQUARE ONE Television

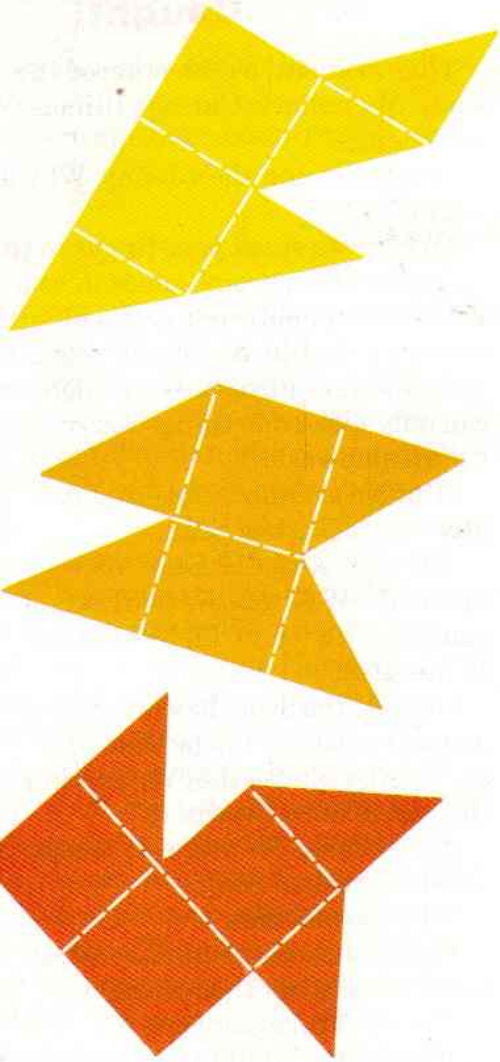
SQUARE ONE SHIFTY SHAPE PUZZLES

DOES GEOMETRY GET YOU BENT OUT OF SHAPE? TRY OUR...



The Big Cover-Up ▼

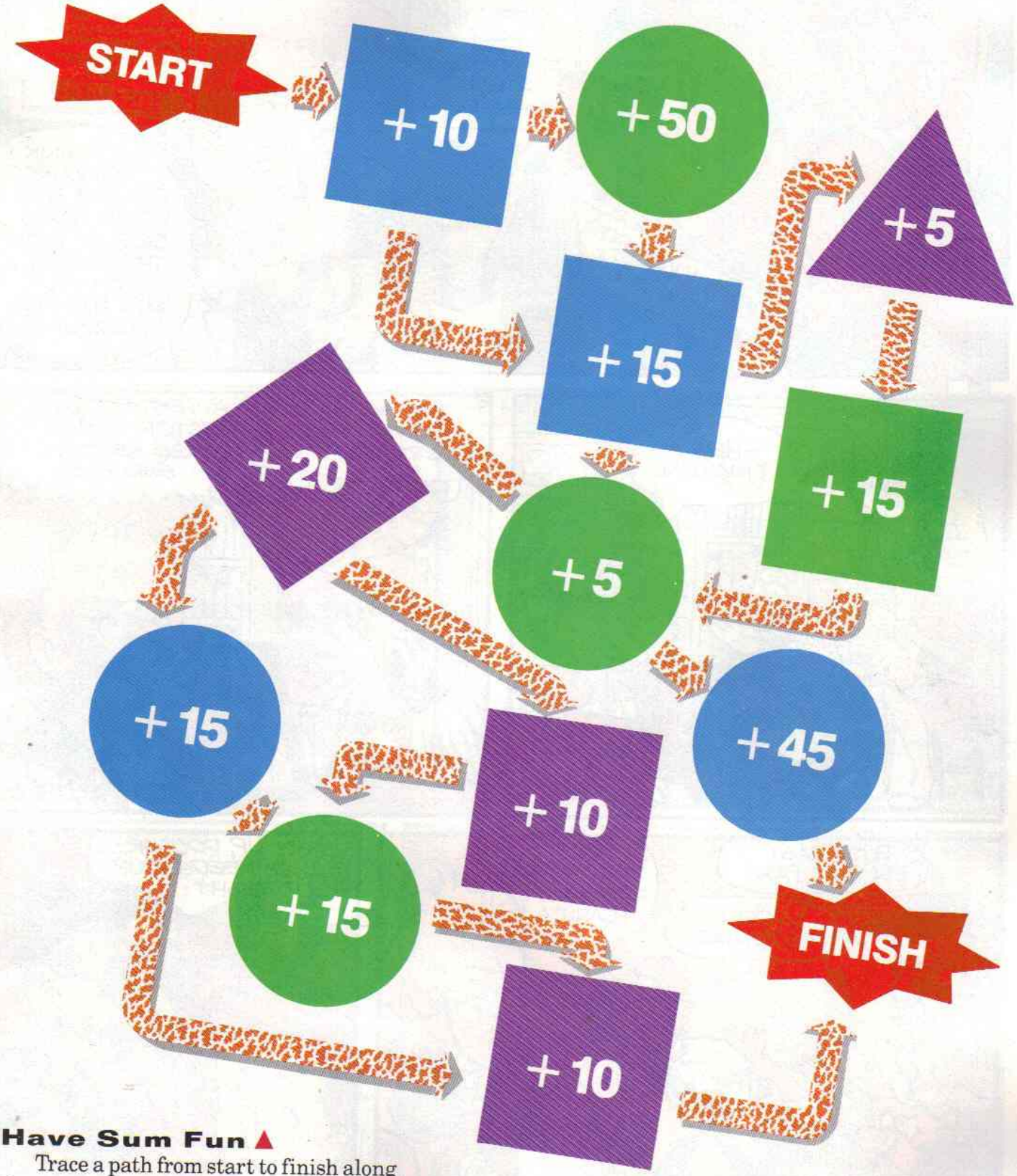
Which of these three shapes covers the greatest area?



But Series-ly, Folks! ▲

Study the pattern carefully. Can you guess which of the three shapes in the circle should go next? (Hint: Think in terms of shapes *and* colors.)

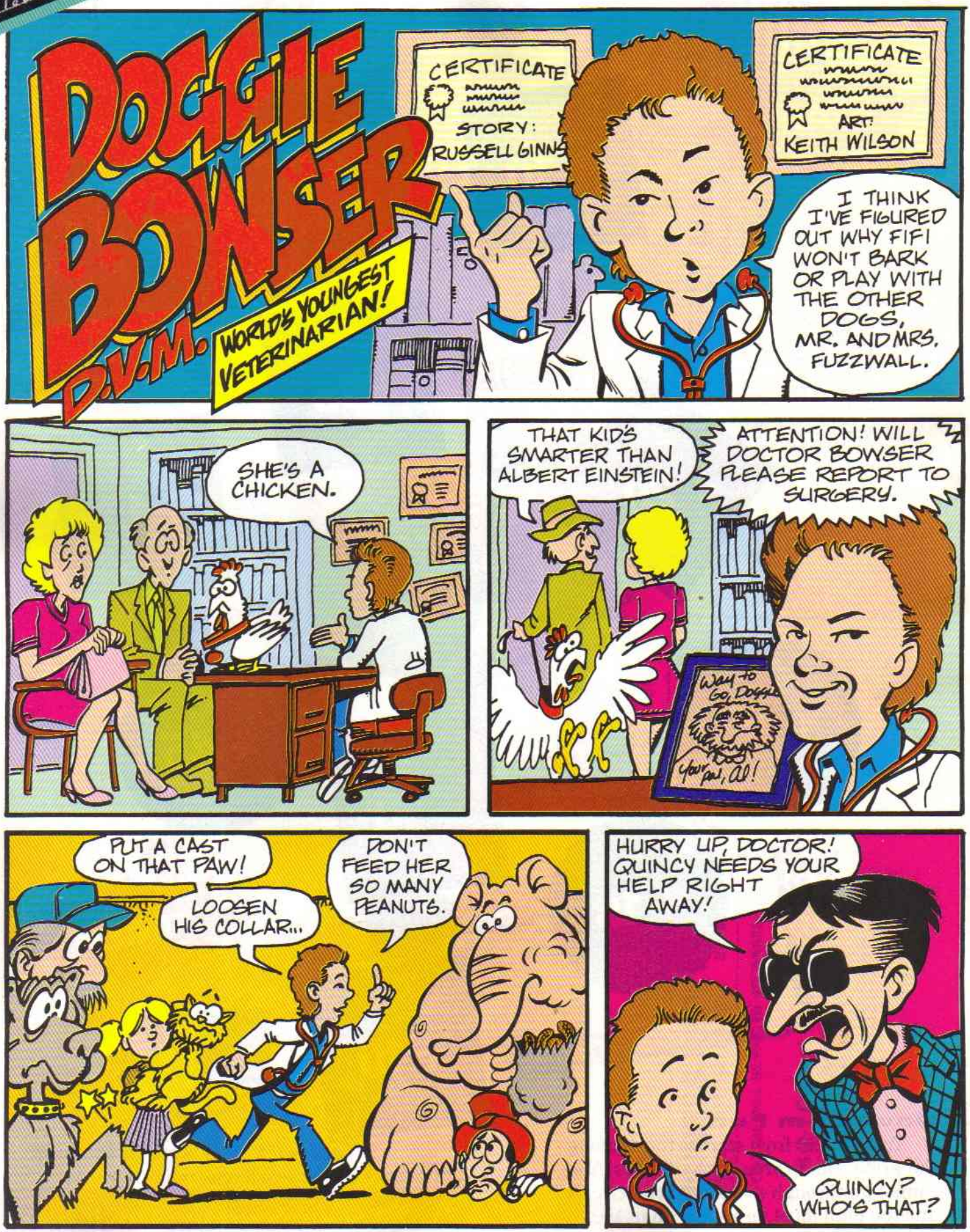
Z Z L E S

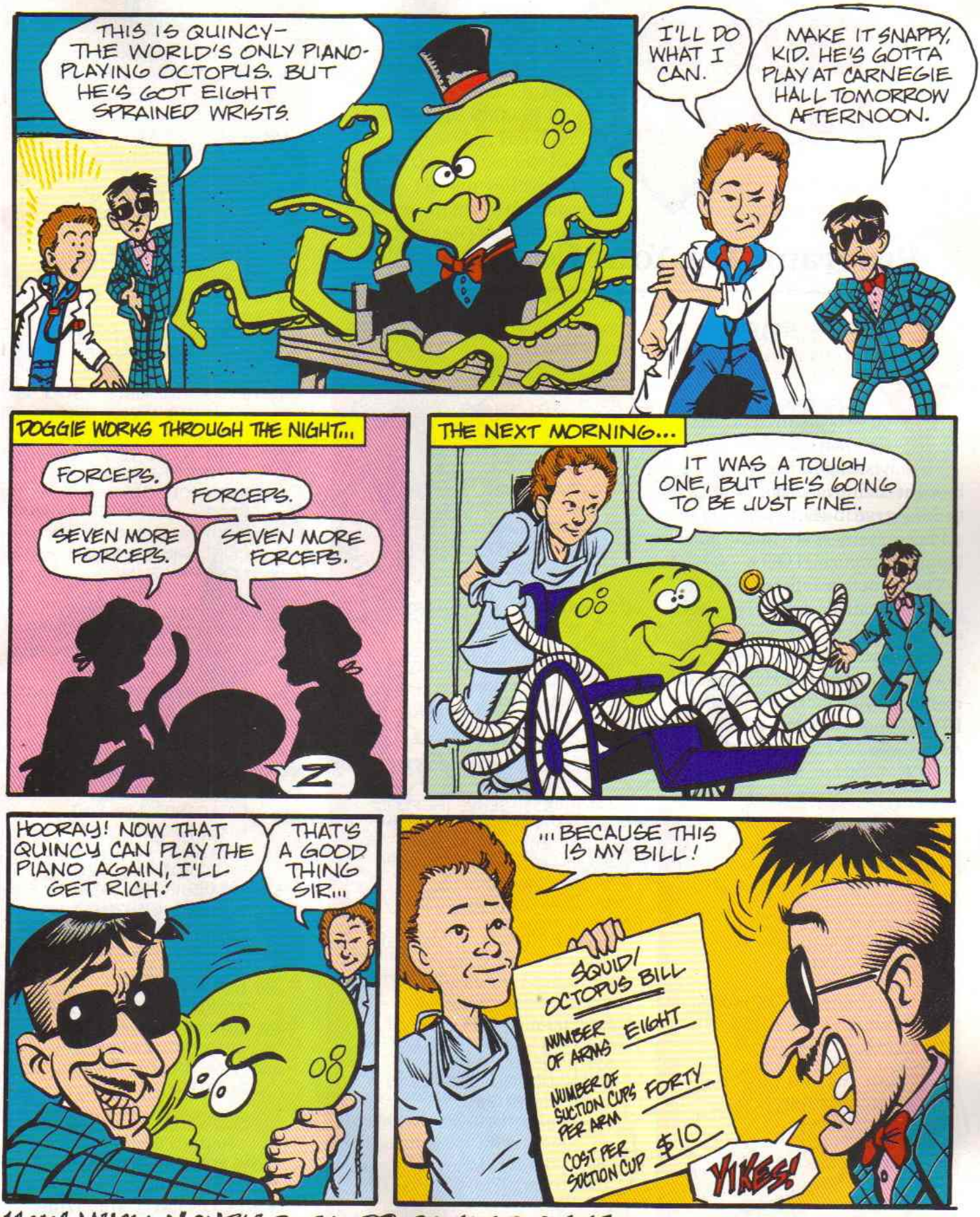


Have Sum Fun ▲

Trace a path from start to finish along the arrows and through the shapes. You cannot go through more than two circles and the total must be greater than 100.

Answers on the Did It page.


DOGGIE BOWSER D.V.M.
WORLD'S YOUNGEST VETERINARIAN!
CERTIFICATE
STORY: RUSSELL GINNS
CERTIFICATE
ART: KEITH WILSON
I THINK I'VE FIGURED OUT WHY FIFI WON'T BARK OR PLAY WITH THE OTHER DOGS, MR. AND MRS. FUZZWALL.
SHE'S A CHICKEN.
THAT KID'S SMARTER THAN ALBERT EINSTEIN!
ATTENTION! WILL DOCTOR BOWSER PLEASE REPORT TO SURGERY.
Way to Go, Doggie
Your pal, Al!
PUT A CAST ON THAT PAW!
LOOSEN HIS COLLAR...
DON'T FEED HER SO MANY PEANUTS.
HURRY UP, DOCTOR! QUINCY NEEDS YOUR HELP RIGHT AWAY!
QUINCY? WHO'S THAT?



HOW MUCH MONEY DOES DR. BOWSER GET? ANSWER ON THE DID IT PAGE.

BASIC TRAINING

Programs For Your Computer

LOONEY LABELS

For Apple II Computers

You've been hired to cook for alien creatures who are visiting Earth. They've brought their food and all you have to do is serve it—but the labels on all the containers are in the aliens' language!

There are four types of ingredients in the aliens' foods. They need some of all of them to be healthy.

For Commodore 64/128 machines, change all HOME statements to PRINT CHR$(147). For IBM, change HOME to CLS and add this line: 5 RANDOMIZE TIMER.

```
 10 REM LABELS
 20 S = O
 30 DIM FD$ (10), IG$ (15,2), C$ (4)
 40 FOR X = 1 TO 10
 50 READ A$: FD$ (X) = A$: NEXT X
 60 FOR X = 1 TO 15
 70 FOR Y = 1 TO 2
 80 READ A$: IG$ (X,Y) = A$
 90 NEXT Y: NEXT X
100 FOR X = 1 TO 4
110 READ A$:C$ (X) = A$: NEXT X
120 HOME :E = O
130 FOR X = 1 TO 4
140 D(X) = O: NEXT X
150 PRINT "IT'S MEALTIME"
160 PRINT "PICK THE FOODS"
170 N$ = ""
180 FOR X = 1 TO 4
190 C(X) = O: NEXT X
200 X = INT (RND (1) * 8) + 4
210 FOR Y = 1 TO X
220 A = INT (RND (1) * 55) + 33
230 L$ = CHR$ (A) :N$ = N$ + L$
240 NEXT Y
250 X = INT (RND (1) * 4) + 1
260 PRINT "THE LABEL ON THE"
    ";C$ (X);" READS:
270 PRINT
280 X = INT (RND (1) * 10) + 1
290 PRINT FD$ (X);" ";N$
300 PRINT : PRINT "INGREDIENTS:
310 X = INT (RND (1) * 3) + 1
320 FOR Y = 1 TO X
330 Z = INT (RND (1) * 15) + 1
340 L$ = IG$ (Z,1)
350 FOR B = 1 TO Y
360 IF M$ (B) = L$ THEN 330
370 NEXT B
380 M$(Y) = L$
390 FOR W = 1 TO 4
400 IF W = VAL (IG$(Z,2) ) THEN
    C(W) = C(W) + 1
410 NEXT W
420 PRINT L$: NEXT Y
430 PRINT : PRINT "WHAT WILL
    YOU DO?"
440 PRINT "1) SERVE THE FOOD"
450 PRINT "2) CHOOSE OTHER
    FOOD"
460 PRINT "3) STOP SERVING
    MEAL"
470 INPUT R$
480 R = VAL (R$)
490 IF R < 1 OR R > 3 THEN 430
500 IF R = 3 THEN 560
510 IF R = 2 THEN 550
520 E = E + X
530 FOR W = 1 TO 4
540 D(W) = D(W) + C(W): NEXT W
550 HOME : GOTO 170
560 HOME PRINT "THE ALIENS
    FINISH EATING."
570 PRINT "THIS IS WHAT THEY
    SAY:"
580 FOR W = 1 TO 4
590 F(W) = F(W) + D(W): NEXT W
600 S = S + 1
610 IF E < 7 THEN S = S — 1:
    PRINT "WE'RE STILL
    HUNGRY."
620 IF E > 17 THEN S = S — 1:
    PRINT "WE HAVE A STOMACH
    ACHE"
630 IF D(4) > 4 THEN S = S + 1:
    PRINT "THAT WAS DELICIOUS"
640 IF D(4) < 5 THEN PRINT
    "PRETTY TASTELESS"
650 IF D(2) < 3 THEN S = S — 1:
    PRINT "WHERE WERE THE
    OINKIES?"
660 IF D(3) > 4 THEN S = S — 1:
    PRINT "TOO FREEMISH"
670 PRINT
680 INPUT "PRESS RETURN TO
    CONTINUE" :R$
690 M = M + 1:G = G + E: IF M <
    3 THEN 120
700 M = O:N = N + 1: HOME
710 PRINT "PROGRESS REPORT
    #";N
720 IF G / N > 50 THEN S = S — 1:
    PRINT "THE ALIENS HAVE
    GAINED TOO MUCH WEIGHT."
730 IF F(4) / N > 16 THEN S = S —
    1: PRINT "THE ALIENS ARE
    SICK FROM TOO MUCH RICH
    FOOD"
740 IF F(1) < 15 THEN S = S — 1:
    PRINT "THE ALIENS NEED
    MORE OA VITAMIN"
750 IF F(2) / N < 5 THEN S = S — 1:
    PRINT "THE ALIENS NEED
    MORE OINKIES"
760 IF F(3) / N < 5 THEN S = S — 1:
    PRINT "THE ALIENS NEED
    MORE FREEMSTUFF"
770 PRINT "YOUR RATING IS: ";S;"
    STARS"
780 INPUT "DO YOU WANT TO
    CONTINUE? Y/N";R$
790 IF R$ = "Y" THEN 120
800 DATA CANDIED, INSTANT,
    MIXED, FROZEN, FRIED
810 DATA CHOPPED, STEWED,
    DRIED, BOILED, SLICED
820 DATA OARBUS, 1, OATGUS, 1,
    OAFNORS, 1, OARWEEZ, 1,
    PROXOAR, 1
830 DATA BOINKIES, 2, DOINKIES,
    2, ZOINKIES, 2
840 DATA FREMNEEN, 3,
    FREEMON, 3, FREEGROSH, 3
850 DATA QOT, 4, QUAT, 4, QUIL, 4,
    ARTIFICIAL FLAVORS, 4
860 DATA CAN, BOX, TUBE,
    BOTTLE
```

Send your programs to:
Basic Training
3-2-1 CONTACT Magazine
1 Lincoln Plaza
New York, NY 10023

THE SLIPPED DISK SHOW

Howdy, Halloweeners! I love to get dressed up in costumes for Halloween. But I can never decide what to go as. This year, I decided to go trick-or-treating dressed as a world-famous computer expert. Then my dog, Floppy, reminded me that I *am* a world-famous computer expert! I guess that means I'm already in my costume, right? No wonder no one ever recognizes me!

Well, here's something I *do* recognize. It's a letter from **Robert Needham of Spearman, Texas.** Robert wants to know:

"What is a parser? Is it possible to write one in BASIC?"

Robert, a parser is one of those little green plants you sprinkle on food that no one ever eats. I never heard of using BASIC to grow one, but...hey, wait a minute. That's *parsley*!

A parser is a computer program that helps a computer understand sentences. A good example of parsers at work can be found in most computer adventure games. For example, if you're playing a game and find yourself in a large cave facing a huge, ugly troll that's about to sprinkle you over his dinner like a piece of parsley, you might type in the command: "Run North!" The parser is the part of the game program that decides that you mean you want to move quickly to another part of the cave.

Most parsers can only understand very simple sentences. For example, if you typed in "North Run," the parser in your game might not understand what you mean. And if you typed in "Get Out Of Here Fast!" you'd probably wind up as a garnish. It's possible to write a very simple parser in BASIC, but the computer wouldn't be able to understand more than a few words or simple sentences, and it would work very slowly.

But I think I can understand this next sentence, which is by **Tracy Krochko of St. Meridien, Connecticut.** Tracy asks:

"Why do you have to write line numbers in a BASIC program?"

Tracy, the line numbers in a BASIC program are like addresses. The computer has to keep track of where it is in the program and which statement it is going to read next. Usually, the program reads the statements starting with the lowest number and going to the next highest until it runs out of numbers or comes to a statement that says: END. But if you put in a GOTO command, the line number in the GOTO statement tells the computer which statement it should read next.

And I know where I should go next—to pick out a new Halloween costume. In the meantime, if you have any computer questions, why don't you send them to me at:

EXTRA!

by Russell Ginns

IT'S NEW AND IMPROVED!

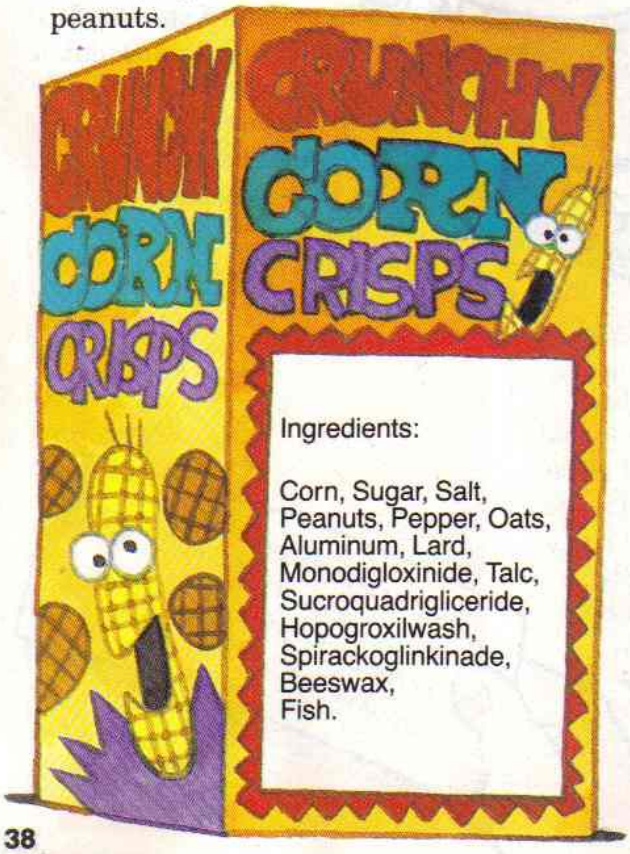
Steve was going to buy a box of Crunchy Corn Crisps. Then he noticed that it contained something he doesn't like. Can you guess which ingredient made Steve put the box back on the shelf?

Read the three clues below. Then study the list of ingredients. The one that fits all the clues is the stuff that Steve didn't want.

The answer is an ingredient of the Did It page.

Clues:

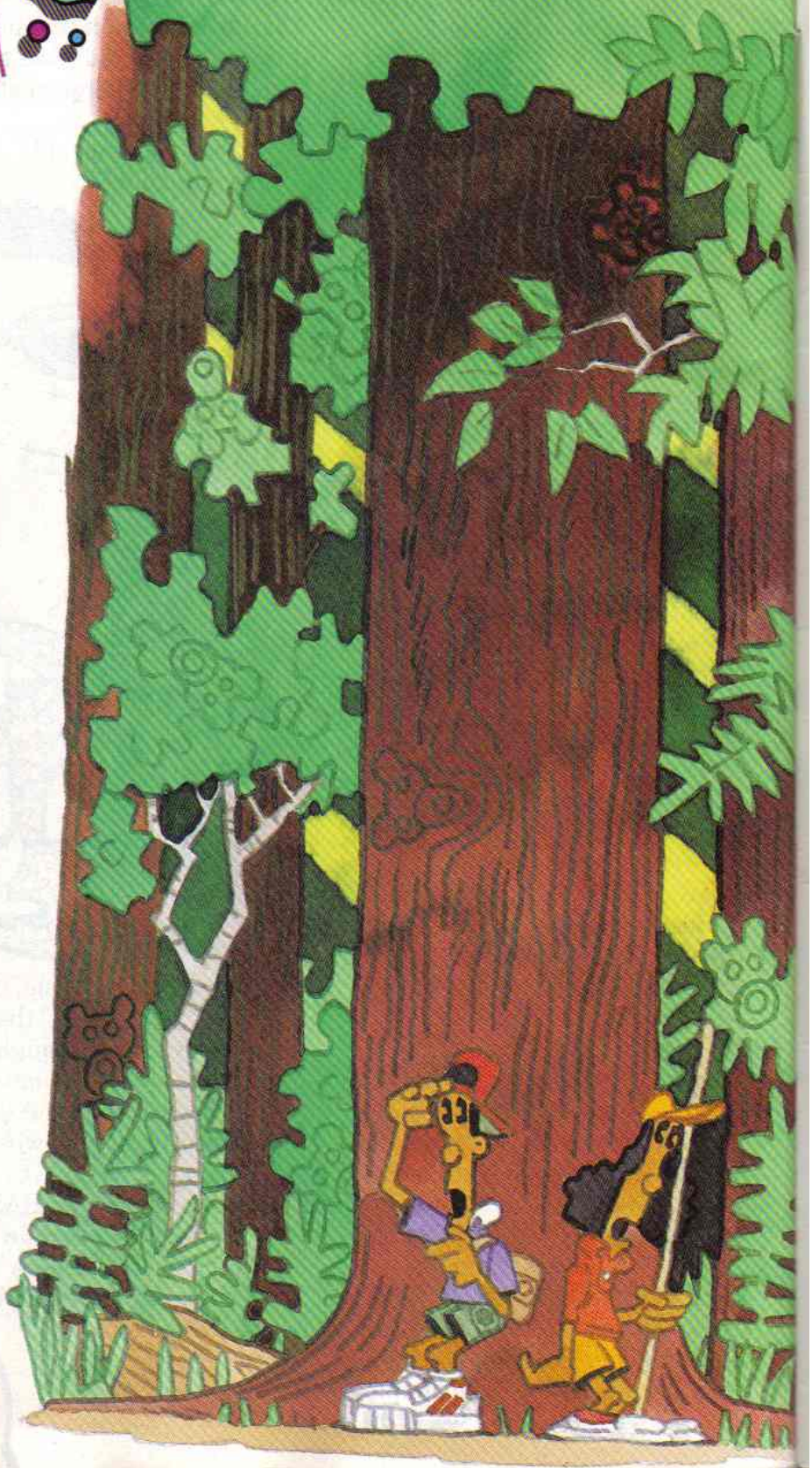
1. It is more than four letters long.
2. It contains either a "T" or a "B."
3. It's not peanuts. Steve loves peanuts.



BEARS? WHERE?

Honeyglaze National Park is full of bears. But sometimes they're hard to find. How many can you spot in this picture?

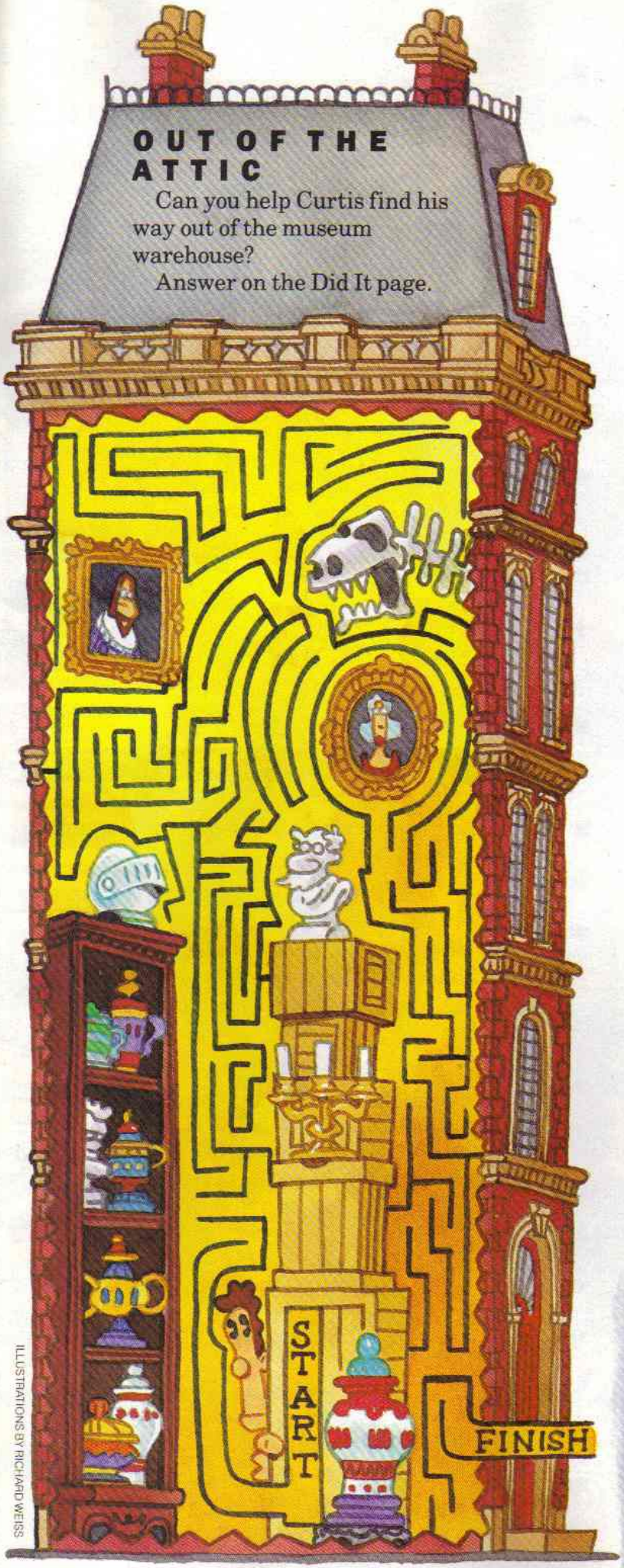
Spot the answer on the Did It page.



OUT OF THE ATTIC

Can you help Curtis find his way out of the museum warehouse?

Answer on the Did It page.



ILLUSTRATIONS BY RICHARD WEISS

UFC—AN UNIDENTIFIED FLYING CONTEST

Win a Whoosh™ flying ring!

How To Solve The Puzzle:

We've hidden the names of 10 objects that have orbited the Earth. They go up, down, across and backwards. Use our list for help.

How To Enter The Contest:

The leftover letters spell one more object that is in orbit. Write the name of it on a piece of paper and mail it to:

Unidentified Flying Contest
3-2-1 CONTACT Magazine
P.O. Box 40
Vernon, NJ 07462

We'll randomly draw 20 names from all the correct answers. Those winners will each get a Whoosh™ indoor/outdoor flexible flying ring.

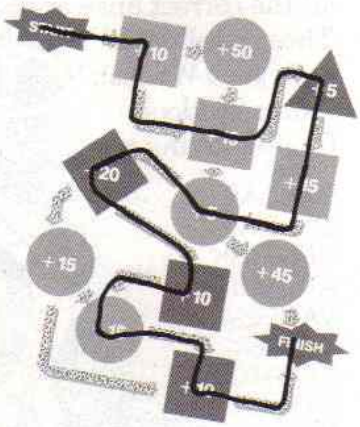
SKYLAB
LANDSAT
SPUTNIK
ATLANTIS
VANGUARD
TIROS
COSMOS
GEMINI
MIR (The Soviet space station)
YEROSHA (The monkey astronaut)

A	H	S	O	R	E	Y	D
T	T	K	L	H	G	C	R
L	T	Y	A	E	E	O	A
A	I	L	N	M	M	S	U
N	R	A	D	R	I	M	G
T	O	B	S	O	N	O	N
I	S	O	A	N	I	S	A
S	P	U	T	N	I	K	V

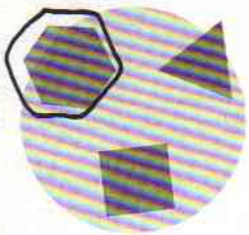
Did it

THE BIG COVER UP

HAVE SUM FUN



BUT SERIES-LY, FOLKS!



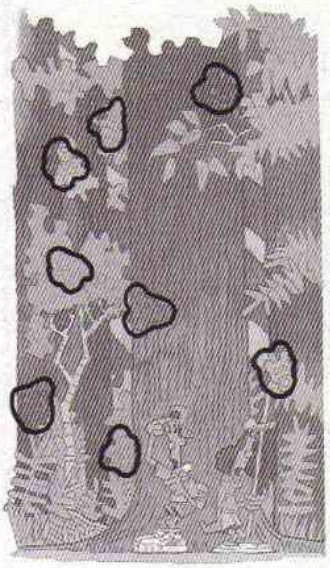
IT'S NEW AND IMPROVED!

Answer: Beeswax

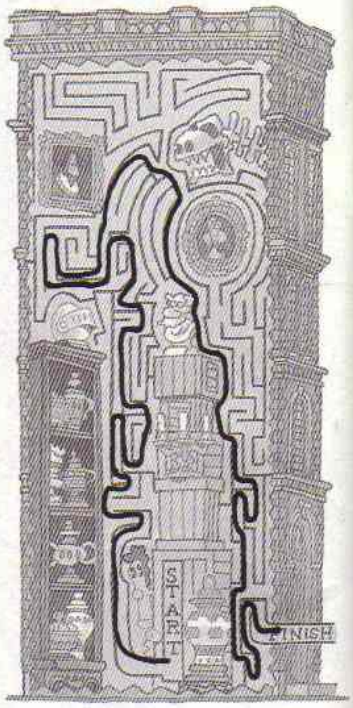
DOGGIE BOWSER

Total cost: $3,200

BEARS? WHERE?



OUT OF THE ATTIC



NEXT MONTH

Here's what's coming your way in the December 1990 issue:

PIG PETS

Are you looking for an unusual house pet to give as a holiday gift? How about a pig! We're not kidding. You'll find out why in our pig feature.

RAIN FORESTS IN DANGER

Rain forests are an important source of food, medicine and oxygen. Now the rain forests are in danger of disappearing. Visit these forests and discover what is being done to try to save them.

ROBOTS IN YOUR FUTURE?

What will robots be doing for you in the year 2000? You'll be amazed to read what tomorrow holds in store for these mechanical "people."

PLUS

THE TIME TEAM

AND MUCH, MUCH MORE

TASTE OF ADVENTURE SERIES

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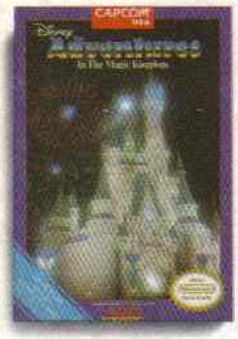
THE KEY TO FUN IS IN DISNEY'S ADVENTURES IN THE MAGIC KINGDOM.



Goofy left the Golden Key inside the Enchanted Castle. Without it, the parade can't begin! To enter the Castle, you must help Mickey Mouse find six Silver Keys that are scattered throughout the Magic Kingdom. Can you find them?

You'll soar through the galaxy in Space Mountain, clash with buccaneers in Pirates of the Caribbean, and tangle with some nasty ghosts in the Haunted Mansion. Discover the wonders of the Magic Kingdom in your quest for the six Silver Keys.

- Meet old friends, including Mickey Mouse, Donald Duck, and Goofy.
- Explore all your favorite attractions, such as Big Thunder Mountain and Autopia.

- The most exciting rides in the Magic Kingdom will be all yours!

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